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INTRA-PELVIC MANIPULATIVE SURGERY OF THE PELVIC ORGANS

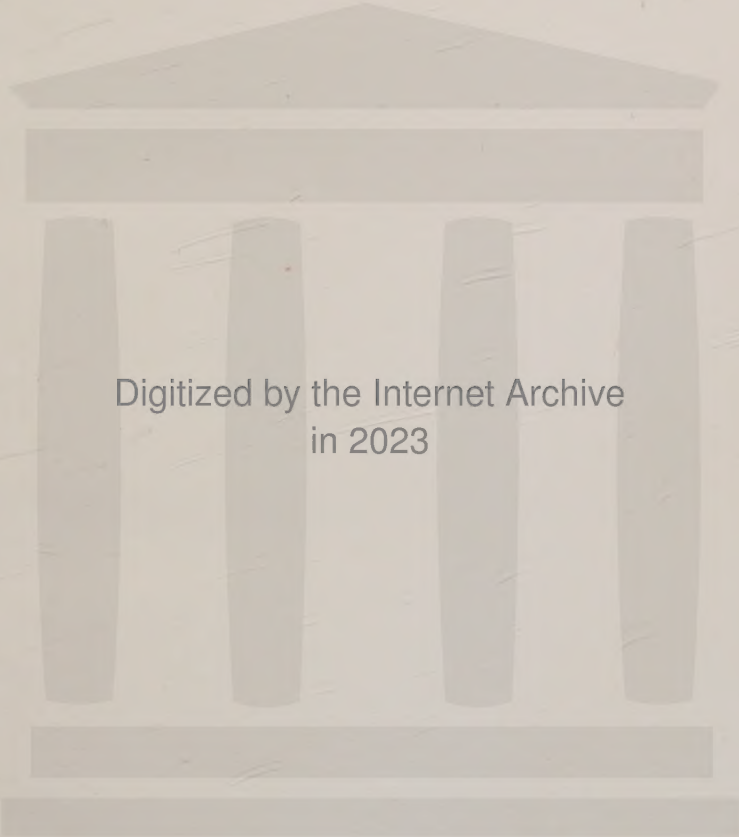
By Dr P.H. Woodall

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INTRA-PELVIC TECHNIC

OR

Manipulative Surgery of the Pelvic Organs

by

PERCY H. WOODALL, M. D., D. O.

Member of the American Osteopathic Association.

Former President of the American Osteopathic Association.

Member of the Tri-State Osteopathic Association.

Former President of the Tri-State Osteopathic Association.

Member of the Alabama Osteopathic Association.

Former President of the Alabama Osteopathic Association.

Honorary member of the Tennessee Osteopathic Association

Associate Member New York Osteopathic Society.

Fellow American Academy of Ambulant Proctology.

Author, A Manual of Osteopathic Gynecology, also Osteopathy the Science of Healing by Adjustment.

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DR. PERCY H. WOODALL

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Preface

Literature upon the manual treatment of pelvic pathology is surprisingly meager. It is by no means a new subject. During the same years two men in widely distant parts of the world were developing the treatment, Major Thure Brandt (1822-1895) a layman and an officer in the Swedish army and Dr. Andrew Taylor Still (1828-1917) an American physician.

These men were developing the treatment along different lines. Major Brandt, according to his training, along the lines of gymnastics and massage. Dr. Still with his newly discovered principle that mechanical perfection is the chief element in the maintenance of health, along the lines of mechanical adjustment of bodily structure. Nor did Major Brandt give any consideration to spinal maladjustment, with consequent disturbance of spinal innervation, as being related in any way to pelvic pathology.

So the teachings of these two men and their followers are related as massage is to osteopathy. Massage is by no means useless but is merely an adjunct. It lacks the definite, specific ideal of **adjustment** (the essential principle of osteopathy), but is sometimes useful as a means to accomplish this end.

With a desire to aid in the further development of this most valuable therapeutic measure the following pages are presented.

PERCY H. WOODALL, M. D., D. O.

Birmingham, Alabama
November 25, 1925.

CHAPTER I.

Definition and Application

We shall limit the term "intra-pelvic" technic, as nearly as possible, to those manipulations applied with the hands directly to the organs and tissues within the pelvis, though occasionally it may be necessary to describe other collateral treatment. Its purpose is to readjust and reconstruct the soft tissues within this region to the end that their functions may be restored. It is an integral part of the usual spinal and innominate technic. It presupposes the application of this technic and is by no means a substitute for it. It is merely a part of the treatment necessary in many cases and by no means the only necessary measure. It is not presented as an essential part of every gynecological treatment but as the best way and often the only way of successfully attacking certain pathological conditions within the pelvis.

There is a great deal of meddlesome gynecology practiced. We sometimes forget that every female ill does not originate in the pelvis. So intra-pelvic technic is not to be used indiscriminately, but only when there are definite indications for it.

Being an agency of greatest good in selected cases it has possibilities of proportionate harm if improperly used. Among these possibilities are the rupture or an abscess, a pyosalpinx, a cyst (if of an infecting character), the sac of an ectopic gestation.

an acute or subacute inflammation may be aggravated, or hemorrhage may follow the tearing of adhesions.

This technic and its contraindications require the nicest discrimination and the best of judgment. In no field of manipulative therapeutics is there a wider field for the expression of knowledge of structure, of skill in palpation, or a more delicate sense of touch demanded.

The therapeutic value of this measure is enormous and is limited only by the knowledge and skill of the operator.

Surely if any manipulative technic deserves the appellation of "manipulative surgery" this does. No where in the body can those conditions ordinarily demanding surgical intervention, be as successfully treated and surgical operations prevented by manual technic, as in the pelvis.

Whatever may have been the primary cause of intra-pelvic pathology, whether tissue maladjustment or normal resistance overwhelmed by the quantity or quality of an infection, even though this cause may have been removed, or has ceased to operate, certain secondary conditions remain. So an inflammation in the pelvis may have subsided but has left in its wake many injurious sequelae. The removal of these is of equal importance with the removal of the primary cause, if function is to be established.

CHAPTER II.

Indications and Contraindications

Intra-pelvic technic is particularly valuable in the treatment of displacements, lessened mobility of the uterus, subinvolution, metritis, ovaritis, salpingitis, passive pelvic congestion and many cases of inflamed or obstructed ureters, and in fact any case of subacute or chronic inflammation within the pelvis not accompanied by malignant or tubercular involvement or pus accumulation.

In pregnancy to relieve pressure symptoms or to give relief from obstinate vomiting good results are often obtained.

It is contraindicated by malignancy, tubercular inflammation, particularly if purulent, the presence of confined pus, and ectopic pregnancy.

It is easily apparent that no manipulation should be attempted in malignant diseases of any of the pelvic organs. No possible benefit would accrue and harm would undoubtedly result. Inflammation and metastases elsewhere would naturally be expected. The same is true to a lesser extent of tuberculosis of the pelvic viscera.

In most cases of acute inflammation the pain caused by the manipulation of the affected part

would prevent the treatment being used. In acute inflammatory conditions intra-pelvic technic should not be attempted until several weeks have elapsed since the subsidence of all acute symptoms, and even then it sometimes happens that treatment is followed by a slight return of the acute symptoms. These must be allowed to subside before the treatment is repeated.

Confined pus, if the microorganisms are still active, and this is a difficult matter to determine, is a contraindication. Old collections of pus are said to become sterile, but even so, it is not wise to risk the rupture of a pyo-salpinx or the expression of pus through the fimbriated extremity of the uterine tube. So if pus be suspected in a tube the treatment should be given with extreme care. All manipulations should be made toward the uterus so as to drain the tube in that direction and reactions after treatment as to pain and temperature should be carefully watched. In cases of a well-developed pelvic abscess surgical drainage is the indicated treatment.

In an ectopic pregnancy any manipulation might cause serious hemorrhage until after the death of the foetus and the organization and encapsulation of the extravasated blood and damaged tissues. After this has occurred the disappearance of the mass is often facilitated by intra-pelvic technic carefully and properly applied.

Menstruation is not a contraindication but an indication for great care and gentleness. Ordinarily the intra-pelvic technic is suspended during the periods, but in some cases of dysmenorrhoea, and in stubborn cases of displacements caused by adhesions, more can be accomplished at this time than at any other, the adhesions seemingly being less resistant than between periods.

Fever, unless clearly due to acute inflammation about the pelvis, is not a contra-indication but is also an indication for extreme care and gentleness and a close scrutiny of reactions after each treatment. If the treatment is followed by a slight rise of temperature or a marked increase of discomfort these must be allowed to subside for several days before the treatment is repeated.



Fig. 1. The Uterus in Normal Position.
(Findley, Diseases of Women.)

CHAPTER III.

Anatomy.

In considering the anatomy of the pelvic organs, only certain points will be mentioned that are particularly related to intra-pelvic technic.

First we must visualize a pelvic cavity entirely filled with viscera. There is no unfilled space. (Fig. 4.) Everywhere each viscus touches and is touched by others. It is only by this vision that we get a true understanding of the etiology and pathology of the conditions which we expect to correct. Nor must we consider only the internal generative organs. Besides these there are the bladder, the urethra, the ureters, the pelvic colon, the rectum, the coils of small intestines, peritoneum and connective tissue. These with their positional relationship to each other as well as their relationship through blood, nerve and lymph supply must be understood.

The uterus (Fig. 1) will be disposed of without a discussion of its ultimate structure as this is capably dealt with in the usual textbooks on gynecology. For our purposes its normal size, position and mobility are of more immediate importance. In fact the physician who has not by experience become familiar with these cannot hope to attain to the fullest success in practice.

The virgin adult uterus is slightly less than three inches long, slightly less than two inches wide and about one inch thick. After childbirth it remains somewhat larger than before and after the menopause it again shrinks. When palpated through the abdominal walls it seems larger than the dimensions given, owing to the thickness of the tissues through which it is felt. Only by familiarity with its normal size can the small infantile or the atropic, or the enlarged, congested or subinvolted uterus be recognized.

The fundus of the uterus, when the bladder and rectum are both empty, rises to or slightly above the brim of the pelvis. It is directed forward and slightly upward. It is approximately in the median line, (slightly to the left according to some authorities) and rests forward upon the bladder. The long axis of the body of the uterus is nearly horizontal in the erect position, almost perpendicular in the dorsal position and forms a slight angle with the cervical canal. This position may be considerably modified by the distension of the bladder or rectum. As the bladder fills the uterus becomes more and more perpendicular, (in the erect posture) and with the bladder fully distended the fundus may point upward or even slightly backward toward the sacrum.

Distension of the rectum affects the position of the uterus less markedly, but to some extent. It may

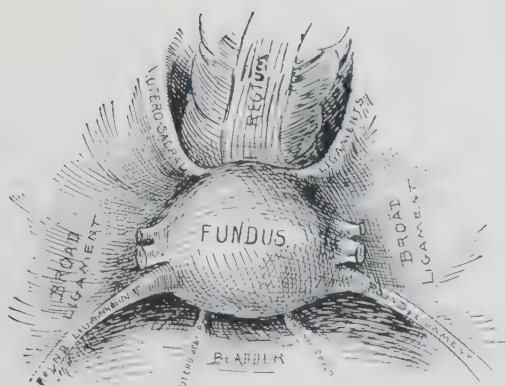


Fig. 2. Uterine Ligaments, Showing Them All on Same Plane.
(Gilliam, A Text Book of Practical Gynecology.)

press the uterus forward and may render more acute the angle between the body and cervix.

The cervix is normally found about midway the ischial spines, and should point backward and slightly downward. Its direction is also affected, to some degree, by the distension of the bladder and rectum. As the former fills, the cervix points more and more downward, and the same is true as the latter fills. This is because the uterus tilts about a transverse axis running approximately through the cervico-corporeal junction. Pressure applied to the anterior surface of the fundus has the same effect on the position of the cervix as pressure applied to the posterior surface of the cervix.

The uterus has four pairs of ligaments. (Fig. 2). These limit extreme motion of the uterus but do not contribute, directly, a great deal to its support. The chief means of its support is the pelvic floor. There are two vesico-uterine ligaments anteriorly, two sacro-uterine ligaments posteriorly, and a broad and a round ligament laterally.

The vesico-uterine ligaments are formed of two folds of peritoneum that are reflected over the pelvic connective tissue lying between the bladder and the uterus.

The sacro-uterine ligaments are formed of un-stripped muscular fibers continuous with those of the

uterus, with fibrous and loose connective tissue, all of which are covered by peritoneum. They are attached to the anterior surface of the second and third bones of the sacrum. From here they run downward and forward to the uterus, one on either side, and are attached at the level of the internal os. Occasionally similar secondary bonds pass downward from the fifth lumbar vertebra. These ligaments with the anterior vaginal walls are said to form an elastic beam by which the uterus is suspended. These ligaments in their normal condition prevent the uterus from being dragged beyond the vaginal entrance.

The broad ligaments are composed of loose connective tissue and unstriped muscle fibers, covering which is peritoneum. They are attached by their inner margins to the sides of the uterus and at their outer margins to the sides of the pelvic wall, following a line beginning midway between the ilio-pectineal eminence and the sacro-iliac articulation, and running downward and backward to the level of the spine of the ischium between the great sacro-sciatic notch and the obturator foramen. At their outer margins these ligaments are nearly vertical (in the erect position), while at their inner margins they are nearly horizontal forming a shelf upon which rest the intestines. These ligaments in a small degree, limit the lateral motion of the uterus, and if the sacro-uterine ligaments have for any reason lost their tone, they assist in preventing total prolapse.

Between the peritoneal layers of the broad ligaments, and transversing the connective tissue of which they are largely composed, are the ovarian and uterine blood vessels, lymphatics and nerves. There are also the uterine tubes, the parovarium, the round ligament and in its lower part near the cervix, the ureter. The ovary is rather on the posterior or upper layer of the broad ligament.

The muscle fibers in the broad ligament are of the unstripped variety, a continuation of the outer layer of the uterine muscle, and form a flat layer between the uterus, ovaries and tubes.

The round ligaments are composed of unstripped muscle fibers from the uterus, arising from its superior angles. They pass forward, upward and outward, between the layers of the broad ligament, in front of and below the uterine tube. They enter the internal abdominal ring, pass through the inguinal canal and are inserted into the subcutaneous tissues of the labia majora. They are supplied by the genital branch of the genito-crural nerve and are capable of electric stimulation. They are pierced through their center by a branch of the deep epigastric artery. They are from four to five inches long and contracting together tend to pull the fundus of the uterus forward and perhaps prevent retroversion in coughing, lifting or straining.

The ovaries are two flattened, elongated,

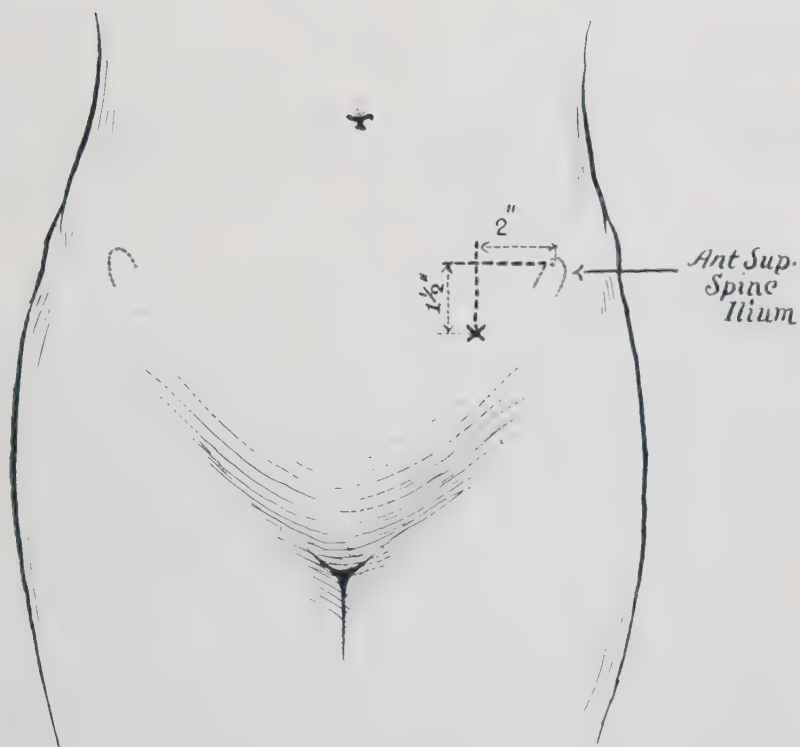


Fig. 3. Surface Location of Ovaries.

oval shaped bodies about one and one-half inches long, three-fourths inches wide and about one-third inch thick. They are placed with their long axes almost vertical. Their lower extremities are attached to the uterus by the ovarian ligament, their upper extremities to the fimbriated end of the uterine tube. By their anterior margins, which look forward and outward, they are attached to the broad ligament. The free margin looks inward and backward toward the rectum. The ovaries are peculiar in that they are in reality within the peritoneal cavity. The peritoneum forming the broad ligament ceases at the attached edge of the ovary. Each ovary lies in a shallow depression on the lateral wall of the pelvis called the ovarian fossa. This fossa is bounded in front by the hypogastric artery, behind by the ureter and above by the external ilias vessels. It is slightly to the side of and in front of the rectum. The position of the ovary is variable. It perhaps never exactly regains the position from which it is displaced by the first pregnancy. It is affected by posture, the degree of distension of the bladder or rectum and by the position of the uterus. Its tendency, unless restrained by adhesions is to backward and downward displacement into the recto-uterine excavation. In its varied positions the uterine tube forms a loop around it, the inner half of the tube ascending obliquely over it, the outer half with the dilated extremity, descending and

bulging out behind it, from which the fimbriae pass to grasp it.

Within the pelvis the bladder being empty, a line connecting the two ovaries would pass posterior to the body of the uterus. On the surface of the body the ovaries lie about one and one-half inches below a point about two inches toward the median line from the anterior superior spinous processes of the ilium. (Fig. 3.)

The uterine tubes begin at the superior angles of the uterus and pass outward to the side of the pelvis. They are situated in the upper margin of the broad ligament, and are from three to five inches long. Their inner third is constricted and called the isthmus, the outer portion, the infundibulum or fimbriated extremity, and the intermediate dilated portion which curves over the ovary is the ampulla. They pursue a tortuous course, and are directed laterally to the uterine extremity of the ovary; they then ascend along the anterior margin of the ovary to the tubal extremity. Arching over this they turn downward and terminate in twelve to fifteen fringe-like processes, the fimbriated extremity that partially surrounds the ovary, embracing its free border and inner surface.

The vagina is a musculo-membranous canal leading from the vulva to the uterus. Its anterior wall which is in relation with the urethra and bladder is about two and one-half inches long. Its pos-

terior wall about three and one-half inches long is in relation with the perineal body at its lower fourth. Its middle two-fourths are in close relationship with the anterior rectal wall, being separated from it by a small amount of loose connective tissue with blood vessels and lymphatics. Its upper fourth is in contact with the recto-uterine excavation, and is separated from the peritoneum by a thin layer of tissue.

The walls of the vagina are in contact, a transverse section showing the canal to have the general shape of the letter H with a long transverse bar. Its axis forms nearly a right angle with the axis of the uterus when that organ is in normal position. The posterior wall extends higher up on the cervix of the uterus than does the anterior. The junction of the anterior and posterior walls of the vagina with the cervix forms the anterior and posterior fornices, respectively.

The mucous membrane of the vagina more nearly resembles skin than ordinary mucous membrane, being a stratified pavement epithelium resting upon dermal papillae.

The bladder is in relation posteriorly with the upper part of the vagina and the uterus. It is rather closely connected with the upper portion of the vagina and the front of the cervix by areolar tissue.

Its degree of fullness affects to some degree the position of the uterus.

The urethra is embedded in the anterior vaginal wall, with which its general direction coincides. It is about one and one-half to one and three-fourths inches long and about one-fourth inch in diameter. It is capable of dilation to a diameter of almost an inch.

The ureters enter the pelvis about an inch and a quarter to an inch and a half from the median line. They follow the curve of the pelvis, first downward, backward and outward; they then pass forward and toward the median line about three-fourths of an inch, lateral to the cervix of the uterus. Coursing through the upper part of the vaginal walls they reach the fundus of the bladder. They pass obliquely through the walls of the contracted bladder for a distance slightly less than one inch. They are about one inch apart, this distance increasing with distension of the bladder.

The pelvic colon begins at the superior strait of the pelvis and at about the middle of the third sacral vertebra becomes continuous with the rectum. Its average length is about sixteen inches, though it may vary from 4.8 inches to 33.6 inches and even in one case to 41.5 inches (Pennington). It is completely surrounded by peritoneum having a mesentery which is longer at its middle portion than at

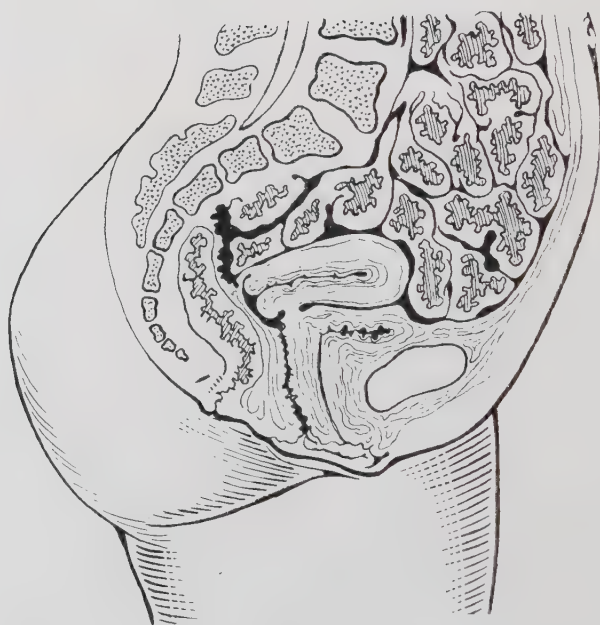


Fig. 4. The Uterus and Its Relation to the Bladder, Rectum and Small Intestines.

the ends, thus allowing this portion considerable range of motion. It is in relation anteriorly with the uterus and broad ligaments. Dr. M. E. Clark says it rests upon the fundus of the uterus. It often lies in the recto-uterine excavation, covered by coils of small intestines.

The rectum extends from the middle of the third sacral vertebra to a little beyond the tip of the coccyx. It is about five inches in length, and follows the curve of the sacrum. The lower portion of the rectum is dilated, forming the ampulla.

Anteriorly and laterally the rectum is covered by peritoneum for its upper two-thirds, but lower down only its anterior surface is so covered. The rectum is in relation anteriorly with the uterus, some coils of small intestines and frequently the pelvic colon unless a retro-displacement of the uterus be present. Lateral to the rectum are the ovaries, the fimbriated extremities of the uterine tubes and the ureters.

Coils of the small intestines can often be found in the recto-uterine excavation, unless this is already filled by the pelvic colon or a retro-displaced uterus. The small intestines are also in contact with the posterior or upper layer of the broad ligament and the upper surface of the uterus, unless as sometimes happens they are crowded out by the pelvic colon. (Fig. 4.)

The parovarium is the remains of the Wolffian body and the Wolffian duct. It is between the ovary and the uterine tube and is sometimes the source of origin of cysts.

Lying upon the pelvic fascia which covers the muscles forming the floor of the pelvis, is a variable amount of loose connective tissue. This serves as a sort of cushion for the viscera and a support for their blood vessels, nerves and lymphatics. This tissue is most abundant at the base of the broad ligaments, the sides of the upper portion of the vagina and about the cervix. It constitutes a large part of the ligaments of the uterus and in it ramify the uterine, ovarian, and tubal arteries and veins. In any condition causing pelvic congestion these vessels become enlarged. This connective tissue is frequently the seat of inflammatory effusions and exudates which may become organized and form cicatricial bands.

The peritoneum lining the pelvic cavity is a continuation of that, lining the abdominal cavity. Posteriorly it passes downward covering the pyriformis muscle and the sacral nerves, and embraces the upper third of the rectum. Passing on down it covers the anterior surface of the middle third of the rectum forming, as it passes from the rectum to the pelvic floor and from there to the upper portion of the vagina and on to the uterus, the recto-uterine excavation. It covers the uterus posteriorly and an-



Fig. 5. THE NERVES OF THE PELVIC ORGANS OF WOMAN.
(FRANKENHAUSER.)

1. Nerves to fundus of uterus. 2. Right Fallopian tube. 3. Right round ligament. 4. Nerves to Fallopian tube. 5. Communication between uterine and ovarian nerves. 6. Ovarian plexus. 7. Ovarian vein. 8. Nerve passing to ovarian plexus. 9. Fimbriated extremity of Fallopian tube. 10. Reflected peritonum. 11. Uterine nerves. 12. Superior hypogastric plexus. 13. Branches from hypogastric plexus to uterus. 14. Inferior hypogastric plexus. 15. Vesical nerves. 16. Communicating branches to vesical plexus. 17. Cervical ganglion. 18. Branches from hypogastric plexus to cervical ganglion. 19. First sacral nerve. 20. Branches passing to bladder. 21. Branches passing between bladder and rectum. 22. Communicating branches from second sacral to cervical ganglion. 23. Branch from third sacral nerve to cervical ganglion. 24. Second sacral nerve. 25. Branches from third sacral nerve to vagina and bladder. 26. Branches passing from fourth sacral to cervical ganglion (Garrigues).

teriorly as far down as the cervico-uterine angle. It passes on to the bladder forming the vesico-uterine excavation, covering its anterior and posterior surfaces from which it is reflected to the anterior abdominal walls. The folds of peritoneum passing over the uterus posteriorly and anteriorly are reflected over the uterine tubes and form the posterior and anterior layers of the broad ligaments. Laterally the peritoneum forming the broad ligaments passes on to the sides of the pelvis.

Within the pelvic cavity peritoneal surfaces are continually in contact. When inflammation occurs, as it frequently does, the inflamed surfaces readily become adherent and form adhesions between the uterus and the surrounding viscera. Such adhesions are common sources of displacement or other pathological conditions.

The blood supply of the internal generative organs is so closely related that it is best considered collectively. It comes chiefly from the uterine and vaginal branches of the hypogastric and from the ovarian branch of the abdominal aorta. To a more limited extent the vesical, internal pudendal and middle hemorrhoidal branches of the hypogastric also supply these organs. A remarkable thing about these arteries, particularly the uterine and ovarian, is their tortuous course and the fact that these two form one large continuous anastomotic trunk. So intimate is their connection that during pregnancy,

it is claimed by some, the ovarian artery furnishes the principal blood supply to the uterus. They lie for the most part in the connective tissue between the layers of the broad ligament.

The venous system of the internal generative organs, in reality, forms one great pelvic plexus embedded in the connective tissue of the pelvis. Various parts of this plexus are named from their connection with some particular organ or from some other peculiarity.

The veins from the uterus arise from a network in its muscular substance from which they pass into a dense plexus at the sides of the organ. From this, the uterine plexus, are formed the two uterine veins which follow the uterine artery and return the blood to the internal iliac vein. The uterine plexus not only communicates above with the ovarian plexus and below with the vaginal and vesical plexuses but forms with them a continuous network of veins.

The veins from the ovary leave the organ largely from its hilum. These join with branches from the uterine plexus and from the uterine tube and form a dense valveless plexus, the pampiniform plexus, between the layers of the broad ligament. From this plexus the venous trunks arise which follow the arteries, the right ovarian vein opening into the inferior vena cava and the left ovarian vein into the renal vein at a right angle. These veins are imperfectly, if at all, supplied with valves, and the left one

passing behind the sigmoid flexure of the colon is easily subjected to pressure when this viscus is filled.

The veins from the vagina form a plexus around this organ and freely communicate with the veins from the bladder, vulva, and rectum and become continuous with the great pelvic plexus. The veins from the uterine tubes enter the pampiniform plexus.

Especial attention is called to the pelvic plexus of veins because of its extent and location by the side of the upper portion of the vagina, along the margins of the uterus and the upper portions of the broad ligaments; its situation in the soft and yielding connective tissue of the pelvis; its practically valveless condition and its great dependence upon the aspirating power of the thorax for the onward flow of its blood. These conditions render these vessels very liable to engorgement as a result of any lesion affecting the vaso-motors of the pelvis or any condition affecting the general circulatory or respiratory systems.

The pelvic organs receive their nerve supply from the ovarian and hypogastric plexuses (sympathetic) and from the second, third and fourth sacral nerves (parasympathetic).

The ovarian plexus originates from the renal plexus. This in turn receives filaments from the coeliac, the aortic and the aortico-renal ganglia and

is joined by the smallest splanchnic nerve. It follows the course of the ovarian artery and is distributed to the ovary and the fundus of the uterus.

The hypogastric plexus is formed by filaments from the aortic plexus and from the lumbar ganglia. It is placed between the two common iliac arteries in front of the fifth lumbar vertebra and the promontory of the sacrum. After sending some filaments to the fundus of the uterus it divides below into two portions situated at the sides of the rectum and vagina and called the pelvic plexuses.

The terminal branches of the hypogastric plexus with filaments from the (first and second) sacral ganglia, also from the anterior divisions of the second, third and fourth sacral nerves and from the nerves accompanying the uterine, ovarian and round ligament arteries, form the "pelvic brain" of Byron Robinson. This also called the "cervico-uterine" ganglion (Fig. 5), is a mass of gangliated gray matter situated on either side of the cervico-corporeal junction in the base of the broad ligament on a level with the middle of the cervix and about an inch lateral to it. Here it can easily be manipulated. Through it the nerves of the pelvic viscera are largely distributed. It is embedded in the pelvic connective tissue and through its gangliated cords, are intertwined arteries, veins and lymphatics. It is so intimately connected with the urinary, genital and lower intestinal tract that irritation in one is often



Fig. 6. Dorsal Position.

reflected in the other two. The reader is referred to "The Abdominal Brain," by Byron Robinson.

CHAPTER IV.

Examination.

The intra-pelvic examination should, as a general thing be the final examination. It should have been preceded by the oral examination, the anamnesis, which through its revelation of history and symptoms will determine the advisability or the necessity of the intra-pelvic examination.

I wish again to emphasize the fact that all of women's ills do not arise within the pelvis and that every woman applying for treatment does not need an intra-pelvic examination, yet at the same time I would remind the reader of the dominance of the reproductive organs and their function through some thirty years of a woman's life.

The question naturally arises, what conditions or symptoms determine the necessity of an intra-pelvic examination? While this may be left to individual judgment, and while I still believe that there is a great deal of meddlesome gynecology, the presence of certain symptoms and conditions as elicited by the anamnesis demand such an examination unless positive contraindications for it exist.

1. Disorders of menstruation, amenorrhoea, dysmenorrhoea, menorrhagia or metrorrhagia when not easily controlled. In cases of women other than

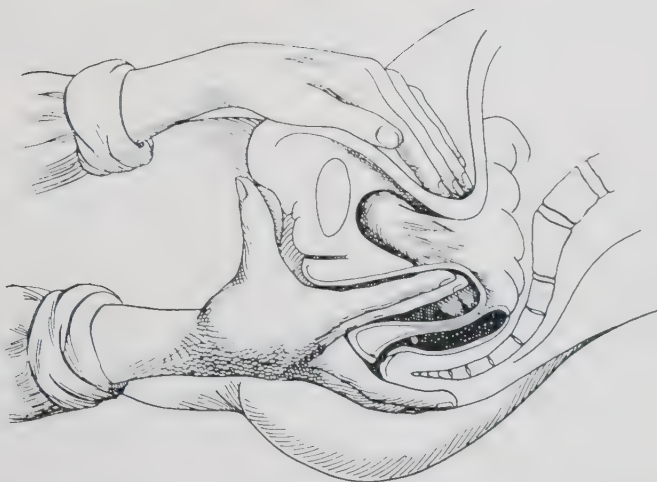


Fig. 7. Showing the use of the unflexed third and fourth fingers in examination and treatment, also the approximation of the fingers with only the vaginal and abdominal walls intervening in bi-manual examination before attempting to palpate the separate organs.

virgins the examination may properly be made as soon as the patient presents herself.

2. The presence of abnormal discharges (either in kind or amount) mucous, pus or blood.

3. The presence of pain in the pelvis or in some sympathetically related part as the dorsal, lumbar or sacral regions of the spine, hips, thighs, bladder, rectum, etc.

4. The presence of pain or disturbed function elsewhere in the body concurrent with the menstrual periods, as headache, backache, indigestion, etc., occurring immediately before, during or after the menstrual period.

5. Disordered psychic or mental conditions concurrent with menstruation.

6. Obscure cases in which it is necessary to eliminate pelvic pathology as a causative or contributing factor.

While it may be true that many cases of pelvic trouble can be cured without an examination, it is a fact that any physician attempting to cure a pelvic disease without an intra-pelvic examination and a correct diagnosis is working in a haphazard and unscientific manner. It is just as sensible to attempt to cure a general disorder without an examination and just as great an injustice to the patient. It is

only in virgins that such an examination may be dispensed with and in these much can be learned by a recto-abdominal examination. It sometimes becomes necessary in such cases to make an examination under anesthesia.

Every intra-pelvic examination should be preceded by an inspection of the external genitals. This is first a matter of precaution on the part of the examiner as by it he or she might be saved an accidental syphilitic or chancroidal infection. It is further the first step in the diagnosis. Some disease of the external genitals may be the cause of the symptoms that are suspected to arise within the pelvis. Ulceration, inflammation, new growths, deformities or abnormal discharges should be looked for. Especial attention should be given to the clitoris and the possibilities of adhesions or accumulations of smegma about it.

We will assume that the patient to be examined is at least a married woman and perhaps one who has borne children. She is placed on the examination table in the dorsal position with the knees flexed and abducted. (Fig. 6.) She is covered with a sheet to minimize exposure. The bladder and rectum should previously have been emptied. Ordinarily the physician both for examination and treatment stands at the side of the table and reaches under the thigh of the patient. In some cases it is better to stand at the end of the table between the separated knees of the

patient. This position enables the examiner to use his body weight against his elbow so that more force may be used and the fingers not only passed deeper into the pelvis by the invagination of the pelvic floor but the examination made more thorough and less tiresome. The use of sterilized rubber gloves is always preferable. In their absence the physician's hands should be thoroughly cleansed with soap and water. While the vagina is lined with pavement epithelium similar to that of the skin and the ease of infection here has been exaggerated, still this is no excuse for anything less than surgical cleanliness. The nails of the index and middle fingers should be trimmed short and freely anointed with a good lubricant. The following can be recommended as a good one not only for the hands but for instruments as well. It is non-greasy and washes off the hands easily. Into one pint of a saturated solution of Boracic Acid stir one-fourth of an ounce of Gum Tragacanth. Ten drops of oil of lavender or of carbolic acid may also be added. Set aside until dissolved, stirring occasionally with any sterile instrument. If it should be too stiff add water.

It has been my custom to use my right hand as the intra-pelvic hand not only because the tactile sense is better developed in that hand, but also because, being right handed, I am more dexterous with it than with the left. It is advised by some that the right hand be used to explore the right side of the

pelvis, and the left hand for the left side. Personally I prefer the use of only one hand for intra-pelvic examination and manipulation. By extending the unflexed third and fourth fingers along the natal cleft (Fig. 7) instead of flexing them into the palm of the hand the pelvis can be a little more deeply explored.

The use of rubber gloves is recommended as a routine practice. Emergencies arise when they are not at hand and soap and water sterilization must be depended upon. Gloves should always be used when there is any suspicion of venereal disease.

The examiner is now to have the severest test of his tactile sense and his manipulative skill. He is to determine the size, shape, position, mobility and consistence of tissues and organs, as it were, floating in a medium of almost their own consistence. Patience, practice, a knowledge of location and the ability to visualize this location are the means to expert diagnosis. Abnormalities can not be recognized unless one has a knowledge of the normal. So no occasion should be lost to acquire this knowledge and to educate the tactile sense to the feel of the normal pelvic contents. Only after repeated examinations can this be done but not until then is the examiner able to detect abnormalities.

As the fingers pass into the vagina the size of its opening, its interior capaciousness, the tone of

the pelvic floor or its resistance to pressure downward and backward and evidences of lacerations should be carefully noted. As the fingers are passed backward any swelling, induration, tenderness or other abnormality of the walls should be carefully looked for. The relation of any of these to urethra, bladder, vulvo-vaginal glands, rectum or ureteral location should be noticed and further examination pursued later.

The fingers should now be passed deeper into the pelvis and the cervix, the chief intra-pelvic landmark, located. It is found about three inches from the vulva, approximately in the middle of a line connecting the ischial spines. In the non-parous woman it will be recognized as a firm, somewhat hard, conical protuberance about one inch in diameter, and projecting at a right angle, for about three-fourths of an inch into the upper portion of the vagina. In the center of its end there is a slight depression, the external os. Childbearing makes certain changes in the cervix. It becomes softer, broader, and seemingly shorter. The os becomes more patulous, often admitting the tip of the finger, and instead of being a round depression it may be felt as a transverse slit or small scars may be felt radiating from it. If it has been severely lacerated it may be divided into two or more distinct portions. In some diseased conditions it may become very much enlarged. Attention should be given to all these changes from the normal.

The cervix should point backward and slightly downward (Fig. 1). Its position and direction are of some aid in diagnosing displacements of the uterus, but a diagnosis should never be made from the direction of the cervix alone. The body of the uterus should always be located.

The cervix should now be tested for mobility. Under normal conditions with the fingers on either side or front and back, it is freely and painlessly movable in all directions. If its motion is restricted or painful either adhesions or inflammation are present. If adhesions they will restrict motion toward the side opposite their location, i.e., if they are on the right side of the pelvis they will restrict motion toward the left. If they are of recent formation stretching them will cause pain. If pain is caused on the side toward which the cervix is forced it is caused by pressure upon an inflamed organ or tissue, an ovary, uterine tube, abscess, etc. The cervix is sometimes immobilized by malignant involvement of the adjacent tissues. Hypermobility of the cervix less frequently occurs and is the result of undue laxity or loss of tone of the pelvic floor, often the consequence of injuries to the perineum.

The next step in the examination is the palpation of the uterus. For this both hands are necessary, one on the abdomen to make counter-pressure and force the uterus down upon the fingers of the other hand, which remains in the vagina, so that it

may be more easily and readily felt by these fingers. The intra-vaginal fingers are decidedly the more important and effective element in the examination. It is true that a great deal is learned through the sense of touch in the external hand, but while it has the thickness of the abdominal tissues through which to feel, the internal fingers have only the thinner vaginal wall and upon these most reliance must be placed for palpatory findings.

Some systematic plan should be pursued and the following is suggested especially for the inexperienced. To these the intra-pelvic examination is for a long time unsatisfactory and disappointing in that they are unable to differentiate or even definitely feel the different pelvic organs. As one gains in experience and efficiency the organs become more easily palpated and the examiner may then modify his routine and adopt the method by which he gets most accurate and quickest results.

First determine the thickness of the tissues between the anterior vaginal wall and the skin without the presence of any intervening organs. To do this approximate the fingers of the two hands by placing the external hand upon the abdominal wall (either bare or at most with only a thin garment over it) at a point slightly below midway between the umbilicus and the os pubis and to one side of the median line, about the outer edge of the rectus muscle. The hand should be placed upon the skin slight-

ly lower down than the point it is ultimately to rest upon and the skin pushed up to this point. The most usual mistake is to place the hand too low down, too close to the os pubis. The fingers should be slightly curved and a gentle downward pressure made in the direction of the pelvic axis. At the same time the fingers within the vagina press upward to one side of the cervix until the fingers of the two hands are brought together, only the vagina and abdominal walls intervening (Fig. 7.) The thickness of the tissue between the two hands will vary greatly in different individuals as they are thin, stout or muscular. It should be carefully estimated as preparation for the next step.

The intra-vaginal fingers are now placed deeply in the pelvis just in front of the cervix and without relaxing its pressure the external hand, and the tissues with it, is moved toward the median line and the uterus is brought between the fingers (Fig. 10). It will be recognized by the additional thickness intervening between the fingers and its firmer consistence as compared to the tissues of the abdominal and vaginal walls.

In making such an examination every effort should be made to secure relaxation on the part of the patient and nothing should be done by the examiner to defeat this end. The patient's head, and sometimes the shoulders as well, should be elevated to secure relaxation of her abdominal muscles; her

hands should be at her sides and she should be instructed to breathe naturally and easily. It is sometimes well to engage her in conversation during the examination as this tends to natural respiration. Advantage may be taken of the relaxation which follows a deep expiration and the fingers pressed deeper into the pelvis and the examination facilitated. Continuous firm but gentle pressure should be maintained by the abdominal hand. Quick, jerky, gouging movements excite muscular resistance and increase the tension of the abdominal walls. If failure to locate the uterus should occur repeat the procedure carefully, feeling more deeply into the pelvis and centering your attention upon the touch perceptions of the internal fingers.

Another method, observing all the details heretofore mentioned, is after locating the cervix, press it upward and forward with the two fingers in the vagina and at the same time insinuate the fingers of the abdominal hand deeply into the pelvis, behind the uterus and bring it forward. Without relaxing their pressure the fingers in the vagina are passed to the front of the cervix and the body of the uterus is brought between the two hands.

After the uterus is located it should be determined whether or not it is in its normal position and location. If it is not the direction of its deviation should be ascertained. Its size, whether normal or smaller or larger than it should be, and be deter-

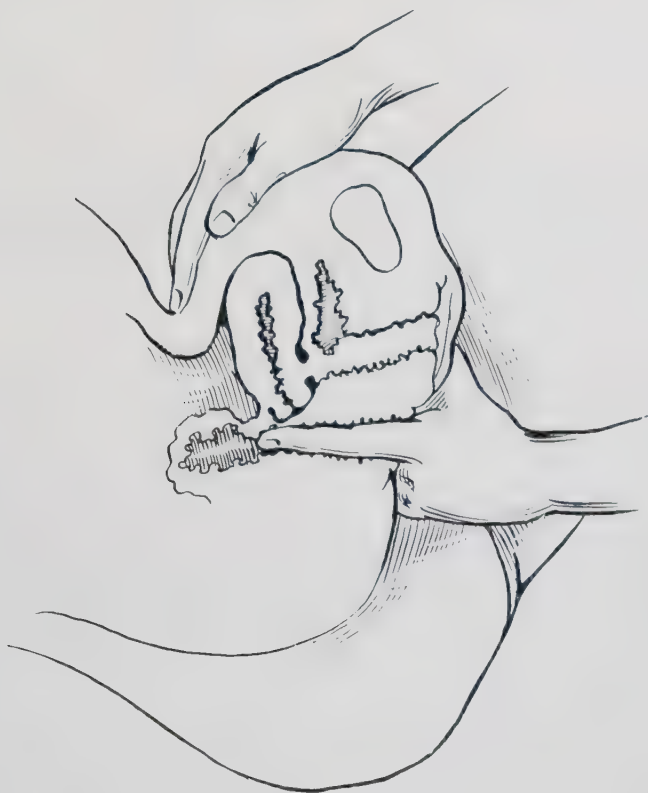


Fig. 8. Recto-abdominal Palpation.

mined. Tenderness on pressure; freedom from growths; consistence whether soft and fluctuating, firm and regular or hard and nodulated, are of importance as is also the angle formed by the body and cervix. It should be possible to carry it out of its normal position to a considerable degree without pain or discomfort. If this is not possible the motion which is limited, or produces pain, should be carefully determined and the cause for the limited motion or pain located.

In palpating the ovaries it must be remembered that normally they are lateral to the uterus, slightly posterior and higher in the pelvis than its body. They are opposite a point on the abdominal wall about two inches medial to the anterior superior spines of the ilium and an inch and a half below this point. (Fig. 3.) It requires considerable practice to examine the normal ovary, especially if the patient has thick or unyielding abdominal walls. Sometimes one is forced to the conclusion that the ovaries are normal even though they can not be found after a careful examination, if there is no tenderness about their normal location. In examining for them the intra-vaginal fingers are pressed backward, upward and outward by the side of the cervix while the abdominal hand over the site of the ovary is pressed backward and downward in the axis of the pelvis. The fingers of the two hands are now approximated, the internal hand being relied upon for

palpatory findings. It is sometimes well to first approximate the fingers of the two hands with only the abdominal and vaginal walls between them to determine their thickness before attempting to palpate the ovary.

If the ovary is not found at the first attempt, while still maintaining the external pressure, press the vaginal fingers deeper into the pelvis, change them a finger's breadth either outward or toward the median line and repeat the attempt until the ovary is found. Gentleness and relaxation as suggested in palpating the uterus are of great assistance. If not found in their usual location the ovaries when displaced tend to fall downward and backward into the recto-uterine excavation. To examine this region press the intra-vaginal fingers into the pelvis posterior to the cervix and the abdominal hand downward and backward in the median line as in the palpation of the uterus. Approximate the fingers of the two hands behind the uterus, slightly outward from the median line and if prolapsed the ovaries can usually be felt.

Pressure upon the normal ovary gives rise to a peculiar sickening pain. When they are located their size, tenderness and mobility should be determined.

The uterine tubes in their normal condition are even more difficult of palpation than the ovaries.

The method given for palpating the ovaries will locate them if they are swollen or filled with fluid. Under these conditions they are recognized by their tortuous course and the irregular bulgings which occur along them. In severe cases the tube may be so enlarged as to fill the entire side of the pelvis. In cases of thin and relaxed abdomens the normal tube may be felt as a small soft cord by palpating out from the angle of the uterus in the direction of its course. Even under the most favorable conditions it is the firmer isthmus and not the ampulla that can be felt. In severe tubal inflammation the tube and ovary may be so agglutinated as to form a single mass in which neither organ is separately distinguishable.

The normal ureters can only occasionally be palpated. They run from the base of the bladder backward and outward and upward through the pelvic connective tissue, about one-half to three-quarters of an inch on either side of the cervix. When they are inflamed or thickened they can be felt as tender cords. Occasionally a stone impacted in their pelvic portion can be palpated through the vagina or rectum. An attempt to palpate them should be a routine part of every examination. Tenderness or induration along their course would be suggestive of inflammation, an impacted stone or stricture.

Recto-abdominal palpation (Fig. 8) as has heretofore been suggested is sometimes advisable in

the case of virgins. The information secured is limited but at times valuable. Only one finger can be used in the rectum without anesthesia, as a rule, and only the structures lying low in the pelvis can be reached with this. The cervix can easily be felt through the anterior rectal wall. Retrodisplacements are as a rule easily detected by this method. Often when a mass is found low in the posterior part of the pelvis by vagino-abdominal palpation it is well to further examine it through the rectum. Its value is frequently of a negative character. If there is the absence of tenderness, induration or a mass in the recto-uterine excavation one is fairly safe in assuming that there is no serious disorder there. Should any of these be present when an attempt is made to approximate the abdominal hand and the finger in the rectum their nature and relationship to the pelvic organs should be determined.

In this examination the gloved or cotted index finger should be used and it should be passed as high into the rectum as possible. It is turned forward and while counter pressure is made with the hand on the abdomen an effort is made to differentiate the organs and conditions that may be present.

Recto-vagino-abdominal palpation is sometimes performed. With one hand on the abdomen making counter pressure the index finger of the other hand is introduced into the rectum and the thumb into the vagina. Occasionally a case may be seen in which



Fig. 9. Erect Position.

some additional information can be secured by this method.

Examination in the erect posture (Fig. 9) becomes necessary in extremely rare cases. Occasionally it may be impossible to determine the amount of descent of the uterus in a case of suspected prolapse unless the patient is examined while standing. For this the examiner sits in a chair and the patient stands in front of him with one foot upon a stool and the vaginal examination is made in this position.

CHAPTER V.

Adhesions.

Adhesions (Figs. 10, 11, 13, 14, 19, 28, 29, 30, 31, 46) are scar tissue and are usually the end results of acute inflammation. This inflammation is either specific, due to the gonococcus, or septic and due either to the pyogenic organisms or in a small per cent of cases to the colon bacillus. Adhesions are sometimes apparently due to mechanical irritation of one serous surface when opposed to another under undue pressure. An example of this is when a retroverted uterus becomes adherent to the posterior wall of the pelvis. As further examples may perhaps be placed those cases in which the pelvic colon is found adherent to the uterus and adnexa. In the female constipation is common and the pelvic colon is often distended with feces and from pressure the opposed serous surfaces may become irritated, abraded and then adherent. The colon bacillus as well as the streptococci and staphylococci often found in the colon, may also play a part in these processes.

It also seems possible that adhesions might result from long continued passive congestion with an outpouring of plastic lymph, followed by its ultimate organization. Here, too, the presence of a low grade of infection may be the determining factor.

It may be well in this connection to discuss the relationship of deranged spinal innervation (the

osteopathic lesion) resulting from disturbed structural relations along the spine and intra-pelvic inflammation. Dr. Carl P. McConnell in Bulletin No. 1, The A. T. Still Research Institute, says, "The lesion effects upon viscus correspond definitely to the path of spinal innervation. It would seem that fundamentally, impairment of the vaso-motors plays the important role, though undoubtedly disturbance of visceromotor, secretory and other nerves are necessary factors, and herein, probably vessel relaxation would take place as a reparative process. Congestion and inflammation are basic to the large majority of diseases, and in all our experiments we find vessel disturbance a constant feature whether in the immediate locality of the osteopathic lesion or as a remote effect, but still related physiologically by way of the nerve centers. Consequently, we conclude some involvement of the vaso-motor mechanism is fundamental to at least a large portion of visceral lesions. Remember we are considering only the osteopathic experimental field as it is presented to us, and not attempting to correlate it with other undoubted etiologic factors."

In the same bulletin the experiment of Dr. Louisa Burns showed that lesions through the lower dorsal and lumbar regions were regularly followed by dilatation of the blood vessels of the reproductive organs. Dr. Burns in Bulletin No. 5 says, "There seemed no doubt that vertebral lesions affecting

the centers in the lower thoracic region are more apt to affect the ovaries or the testes; that lesions in the upper and mid-lumbar regions are more apt to affect the uterine and prostatic tissues; that lesions of the sacrum are more apt to affect the rectal, vesical and vaginal tissues. . . . Bony lesions, with their disturbing influence upon circulation, innervation, secretion and nutrition must be considered important factors, but not the only factors, in controlling the localization of infections and the power of the tissues to overcome various infectious agents. Local circulatory disturbances may be due to the bony lesion exclusively."

Dr. Burns has also shown experimentally in rabbits that lesions affecting the spinal innervation of the pelvic tissues produce edema, decreased elasticity and lessened tensile strength of the broad ligaments and a localized acidosis. Clinical observation and experience give every evidence that similar lesions cause identical conditions in the pelves of women. These conditions undoubtedly lessen resistance and favor infection.

Adhesions occur in two tissues of the pelvis—peritoneum and connective tissue. It is unusual for either of these tissues to be involved alone. They are so closely related anatomically that pathology arising in one would inevitably spread to the other.

The gonorrhoeal inflammation causing adhesions travels by way of the mucous membrane of the uterus to the uterine tubes and from thence to the peritoneum through the fimbriated end of the tube. The progress of the infection is determined by the amount and virulence of the invading infection and the local and systemic resistance offered to it. It may result in a mild salpingitis with destruction of the ciliae of the tube and a mild thickening and infiltration of its walls. A slightly more severe type will extend through the tube walls involving their peritoneal coverings and the connective tissue between the layers of the mesosalpinx. Further invasion and involvement of the peritoneum may be prevented by the sealing of the fimbriated end of the tube by plastic lymph. There may now occur a serious exudate into the tube which is exceedingly likely to become purulent and unless the uterine end remains open and allows drainage, a pyo-salpinx, a collection of pus in the tube, results. If this does not occur the tube walls may become thickened and nodular and infiltrated with pus. Should the fimbriated end not become effectually sealed the pus leaks out, inflammation extends and involves the peritoneum on and about the ovary.

Plastic lymph is poured out and the fimbriae may become adherent to the ovary and an ovarian or a tubo-ovarian abscess form. The ovary may escape direct involvement only to be surrounded and cov-

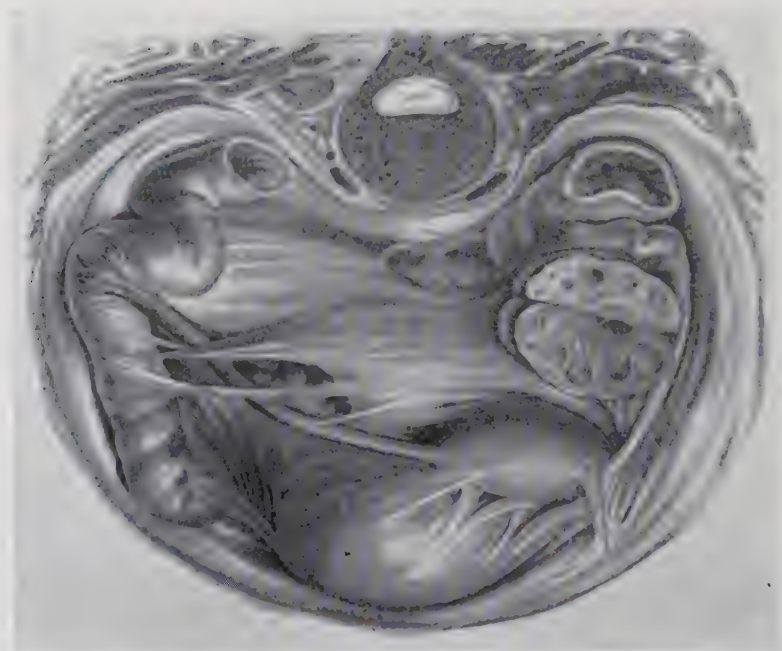


Fig. 10. Pelvic Peritonitis. The uterus is displaced anteriorly and to the left. Adhesions bind it to the bladder and intestine and to the tubes and ovaries * * *. These plastic inflammations are due to gonorrhoeal salpingitis or to metritis or perimetritis from puerperal or operative lesions of the genital mucous membrane. (Schaeffer, Atlas and Epitome of Gynecology.) Left ovary contains multiple cysts.

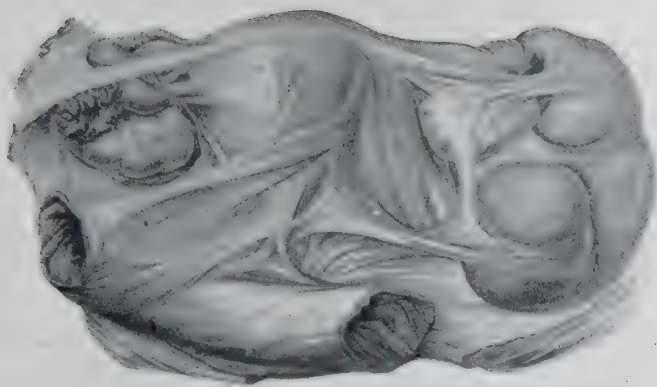


Fig. 11. Pelvic Peritonitis, Perioophoritis, Perisalpingitis and Right-sided Pyosalpinx. View of the pouch of Douglas. Pseudoligaments fix the uterus and its adnexa to the sigmoid flexure. The left tube is bent at an angle, the right tube shows inflammatory redness, and is transformed into a pyosalpinx by the agglutination of the abdominal ostium. The globular divisions of the tumor are characteristically shown. (Schaeffer, Atlas and Epitome of Gynecology.)

ered by this fibrinous exudate which as it organizes and contracts not only interferes with the rupture of the Graffian follicles but may compress the ovary. Because of the inflammation of its peritoneal covering the ovary becomes closely adherent to all other peritoneal surfaces which come in contact with it. Should the stroma of the ovary become involved a true ovarian abscess, even to the size of an orange may develop. Escaping this an atrophic or "cirrhotic" ovary may result. The ovarian function is now damaged, if not destroyed, and severe symptoms may arise particularly with the onset of the menstrual congestion. The inflammation may extend further causing a more or less extensive peritonitis. If this is fibrinous in nature and sufficiently extensive, the coils of intestines in the pelvis will become adherent to the pelvic organs. If purulent, in addition, there will be one or a number of small collections of pus within the pelvis. These collections lie among the adherent organs or may have even burrowed into the connective tissue. The picture is now one of general pelvic inflammation—salpingitis, plus ovaritis or peri-ovaritis, plus peritonitis, plus cellulitis—with the involved tissues bathed in and infiltrated by pus and agglutinated with fibrinous exudate. (Fig. 10, 11).

Should resolution occur and this condition pass into a stage of chronicity, at which time only would it be amenable to intra-pelvic technic, there would be

found a conglomerate mass in one or both sides of the pelvis composed of tube, ovary, peritoneum, connective tissue and perhaps coils of intestines and adhesions. The fibrinous exudate of the acute stage has followed its natural course of organization and contracture and is now binding these deformed and distorted tissues together in some abnormal position. If the connective tissues in the uterine ligaments were affected in the acute stage, these, too, have contracted (shortened) and have drawn the uterus into some malposition. In severe cases with extensive involvement the resulting contracture may have almost obliterated the ligaments and connective tissues and left the uterus immovably fixed in some displaced or perhaps normal position. (Figs. 13, 14.)

The disastrous effects of this condition upon the blood vessels which so freely traverse this connective tissue is easily imagined. As connective tissue, following its inflammation, is organized into scar tissue with its inevitable contracture, blood vessels are obliterated and vital functions are correspondingly disordered. The same is true of the lymph channels. They, too, disappear and proper nutrition and drainage become impossible. Even more important is the involvement of the nerve tracts and plexuses. Interwoven as they are through this connective tissue and in turn permeated by it, if by any means they escape destruction in the acute attack, they are subject to continuous pressure and tension and distortion by

the unrelenting grip of the contracting tissues. Can a more prolific source of reflexes be imagined?

These adhesions vary all the way from gossamer-like films and spider web threads, easily broken by slight traction, to sheets and cords of organized tissue which it is impossible to rupture without serious damage to the organs to which they are attached.

Should a limiting exudate fail to form either because of the virulence of the infection or the weakness of the natural defenses a diffuse peritonitis with a fatal outcome may result.

The inflammation causing adhesions due to pus germs generally follows labor, abortion or the use of instruments within the uterus. In such cases the inflammation usually passes directly through the uterine wall by the way of the lymphatics to the connective tissue, located principally at the sides and in front of the cervix and at the base of each broad ligament. The involvement may vary from a small localized spot to that of the entire area of connective tissue. As the inflamed area extends the peritoneum superposed becomes affected, adding a peritonitis of proportionate extent.

Following the acute stage there may be abscess formation that demands immediate evacuation or resolution may occur. In the latter case scar tissue,

adhesions, develop in the infiltrated areas of the acute stage. Organization and contracture occur in these areas and displacement or immobilization of the uterus results as before mentioned. It is doubtless true that these contractures occurring in the connective tissues are a more prolific cause of displacements than those occurring primarily in the peritoneum.

In the treatment of these cases it is important to determine if possible whether the original acute inflammation was due to infection by the gonococcus or the streptococcus, these being the most frequent infecting agents. As a rule a collection of gonorrhoeal pus becomes sterile or innocuous in a few months while it is doubtful if streptococcus pus ever does. In treatment the danger of arousing a streptococcus inflammation, while remote if care is used, is still present. As a general rule, with exceptions, gonorrhoeal infection travels along the mucous membranes. Some one has said that it is a "surface rider," and its chronic lesions are mostly along the tube and its immediate vicinity. The streptococcus usually travels by way of the lymphatics and its chronic lesions are found mostly in the pelvic connective tissues. In the gonorrhoeal cases there is, at least the clinical history of gonorrhoeal infection or of trouble developing in the pelvis without apparent cause, often soon after marriage. In the strepto-

coccus cases there is the history of labor, abortion or some operation about the uterus or cervix.

Aside from the purely physical effects of adhesions, Graves has the following to say: "The conditions which produce genital neuroses are more apt to be the minor pelvic affections which, without causing severe symptoms, maintain a nagging discomfort and keep the searchlight of the attention constantly turned upon them. The most common or most important source of such neuroses is that which comes from the adhesions of chronic pelvic inflammation. The discomfort may be caused by peritoneal irritation or by the immobilization of organs which normally enjoy free motion in the pelvis."

Symptoms.

The symptoms arising from pelvic adhesions may vary according to the location and severity of the primary attack and the amount of destruction of tissues and function it has caused, all the way from a slight local indisposition to chronic invalidism. This is easily appreciated when one considers the varied pathology which a given case may present. The area involved may be slight or it may be enormous. The degrees of intensity may vary as greatly. Then, too, the functional importance of the affected part will intensify the symptoms. Because of the

enormous nerve supply the reflex or constitutional symptoms are fairly constant.

The victim of adhesions usually has the appearance of invalidism. She looks tired, worn and prematurely aged. She complains of fatigue and nervousness. She is depressed, irritable or even hysterical.

Pain or some degree of discomfort is usually present. This may be constant, definite and localized. It is often complained of in one or both of the iliac fossae. Again it is an indefinite and general pain throughout the pelvis. Such pains may be reflected to the back or down the legs. The so-called "bearing down pain" which is so commonly complained of is frequently due to adhesions. It is often caused by the pull or the drag of the pelvic organs upon the adhesions rather than by any prolapse of these organs. Such pains are often bitterly complained of when no prolapse is discernable. Again the pain may be intermittent and caused by exertion of some kind. Standing, walking, jolting, the use of a sewing machine or any overexertion may cause the pain to appear. Whatever the character of the pain it is usually increased just before or at the menstrual period. This is because of the increased pressure upon the nerve terminals from the congestion attending this function.

Disordered menstrual function is frequent. It may be profuse in the more recent cases to later become scanty or irregular from the general atrophic changes caused by the constriction of blood vessels and nerves. Dysmenorrhoea is common. It may occur as a general deep ache throughout the pelvis with an increase of the backache, legache and bearing down pains. A localized ovarian pain is often manifest at this time. The menstrual flow is often dark and clotted.

Leucorrhoea is present in many cases. In some of the cases of long standing it may not be a noticeable symptom. Atrophic changes have supervened in the meantime and the excessive flow has ceased. Occasionally there may be the emptying of a hydro-salpinx or a pyo-salpinx through the uterine end of the tube, accompanied by a profuse gush of serum or pus from the vagina.

Sterility is almost inevitable. The tubes are often occluded by stricture, adhesions or the accumulation of serum or pus within them. The ovaries may be covered by adhesions or have become the seat of a severe ovaritis.

Constipation is common in women ordinarily, but some cases are due to adhesions constricting the colon, rectum or interfering with peristalsis in the colon.

Diagnosis.

Pelvic adhesions are diagnosed by bimanual palpation only after one has become familiar with the contents of the normal pelvis, their location, size, consistency, sensibility and normal mobility.

One of the first steps in diagnosis is to test the mobility of the uterus. In nearly every case this is diminished. It may be but slightly so, or in severe cases it may seem as fixed as though it had been set in cement. In these extreme cases further palpation of the pelvic organs is almost, or quite, impossible. Sometimes by a recto-abdominal examination by getting the finger in the rectum above the mass of adhesions some additional information may be obtained. When the uterus is movable, the pain or discomfort that may be caused by an attempt to move it is of some diagnostic importance. Suppose on moving the uterus toward the right wall of the pelvis, the patient in response to an inquiry says that pain is felt on the left and if at the same time motion is restricted toward the right, one would strongly suspect adhesions in the left side of the pelvis. If now with the hand on the abdomen and the middle finger of the intra-vaginal hand the uterus is pressed toward the right side of the pelvis the tightened adhesive band can be felt with the index finger of the intra-vaginal hand. By approximation the two hands, keeping the uterus toward the right, the adhesions can be definitely located and their size, rigidity and

tenderness determined. This applies particularly to adhesions arising in the connective tissues lateral to the cervix and in the broad ligament. If on the other hand when the uterus is pressed toward the right and pain is caused on that (the right) side it is evident that some inflamed or sensitive organ is being pressed upon. Look now for an inflamed ovary or a growth of some nature. These symptoms and conditions are of course reversed when the uterus is pressed toward the left, if there is similar pathology on that side.

It sometimes happens that adhesions and inflammation or a growth occur on the same side of the pelvis. An inflamed ovary or tube may exist coincident with adhesions. In such instances pain is caused both by pressing the uterus from the affected side and stretching the adhesions and by pressing it toward the affected side and compressing the inflamed tissues or growth.

If on pressing the uterus upward and forward mobility is restricted and pain is elicited toward the back or rectum, adhesions along the course of the sacro-uterine ligaments are to be suspected. Their presence can be positively determined by palpating them between the fingers of the two hands.

After the mobility of the uterus is tested in all directions and the causes of decreased mobility determined, the ovaries and tubes are next palpated.

This is done in the manner indicated in the chapter on Examination. On one or both sides a mass may be felt in which it may be impossible to differentiate the organs and tissues composing it. This mass is usually separate from the uterus, but may be closely adherent to it. Oftentimes the tortuous, nodular or sausage shaped tube may be felt and traced back to the cornua of the uterus. Again only an enlarged and tender ovary, perhaps displaced downward and backward even to the bottom of the recto-uterine excavation, will be found. These conditions may be found on one or both sides of the pelvis. Sometimes the tubes and ovaries of both sides are found prolapsed and adherent in a single mass in the posterior part of the pelvis.

Treatment.

Readjustment of organs and reconstruction of tissues with restoration of function is the ideal in treatment.

Some time ago in an article on this subject I used the term "ankylosis of the uterus." If this idea be extended to include the ovaries and tubes also, I believe a better conception of the principles involved in the treatment of these cases will be gained. Motion is of course not the primary function of these organs, but it is a condition very necessary to their proper function. That this motion may be free they are covered by serous (peritoneal) surfaces

which glide easily over each other unhindered by the loose and elastic connective tissue about the cervix and in the broad ligaments. Under the influence of inflammation, a plastic exudate is thrown out, serous surfaces become adherent, connective tissue is infiltrated and finally contracts and limitation of motion results. While this is not the matter of greatest moment in pathology, it does give the first indication for treatment, RESTORATION OF MOTION. Without this, adjustment, the ideal in treatment is impossible. Motion is restored here according to the same principles that would be used in an ankylosed and flexed knee joint. The contracted tissues are stretched longitudinally and if necessary are at the same time manipulated transversely. Suppose uterine mobility is restricted toward the right and a contracted band is found in the base of the left broad ligament. To treat this the uterus is pressed toward the right which stretches the band longitudinally. If the band does not yield it is at the same time manipulated transversely by the hand not employed in pressing the uterus to the right. Circumstances will determine the hand with which to do the active manipulation. Ordinarily it is best done with the abdominal hand. The finger tips, the flexed knuckles or any part of this hand may be used that most readily accomplishes the purpose intended whether it be stretching or manipulating. Should the abdominal tissue be thick or tense the stretching may be done by the abdominal hand and the di-

rect manipulation by the intra-vaginal hand as the intervening vaginal tissues are much thinner and the manipulation is more direct and more effectively applied. Crowding the hands into the pelvis will often sufficiently stretch the adhesions so that the transverse manipulation may be made with the adhesions between the fingers of the two hands. In this way vigorous and effective treatment may be given. Occasionally only the longitudinal stretching will be employed, but as a rule both maneuvers will be combined. Should the restricted mobility be toward the left side the methods are reversed.

If on pressing the uterus upward and downward restricted motion and a contracted band is found running backward and upward along the course of the sacro-uterine ligaments, this band is stretched by pressing the uterus forward and is manipulated just as the bands running laterally in the broad ligaments. Here particularly will it often be possible to manipulate the stretched bands between the two hands. In those cases in which the restricted motion is found when the uterus is pressed posteriorly, the band anterior to the cervix is stretched and manipulated according to the same principles. When the mobility of the uterus is restricted in all directions and the organ is fixed, the stretching manipulation must extend outward from the uterus in all directions. As a rule a point of least immobility can be found and

working from this as a starting point a great deal can sometimes be accomplished.

The transverse manipulations should not be confined to one point of the contracted band, but beginning at one end its entire length should be covered.

In the case of the agglutinated tube, ovary, intestinal coil, peritoneum, etc., an attempt should be made to separate and identify the different structures. This is done by trying to insert the tips of the fingers, usually of the intra-vaginal hand, between the separate parts of the mass and in a manner try to pry them apart and at the same time manipulate the mass with the fingers of the other hand. In the case of an enlarged tube, especially if containing fluid, all manipulations should be made toward the uterus so that it may be drained in this direction rather than into the peritoneal cavity. This precaution is particularly important if there is any reason to suspect streptococcus infection as the primary cause of the disorder.

No inflexible rule regarding the force, the frequency or the length of time necessary for a treatment, can be given. Each case presents a different problem and requires judgment to meet its individual conditions as determined by a careful and correct diagnosis. Sufficient force should be used to cause some discomfort, but care should be used, es-

picially in the beginning of the treatment, never to cause severe or excruciating pain. Certainly at no time should enough force be used to rupture an abscess wall, the tube or intestine. The manipulations should be gentle, firm and deliberate. Some soreness or discomfort will often result and this is a fair index as to the severity of the treatment. If it is particularly severe the following treatment should be less vigorous. This, too, is a good indication for the frequency of treatment. The treatment should be repeated as soon as the effect of the previous treatment has subsided. This is not oftener than every other day, possibly only twice a week; while rarely a week or ten days should elapse before another treatment can and should be given. Ordinarily cases do best if treated twice or three times a week. Reactions to treatment should be closely watched. Accomplishment and not length of time should be the criterion of treatment. It is given for a definite purpose and should be persisted in until some part of this purpose has been accomplished. This should ordinarily be done in less than ten minutes.

It is advised that the intra-pelvic treatment should precede any other that is to be given.

Inhibition over the lower lumbar and upper sacral regions in addition to an ice bag or hot packs to the hypogastric region, or a hot douche or a hot Sitz bath will aid in relieving the pain, if any occurs, following a treatment.

CHAPTER VI.

Displacements.

The uterus is balanced, or in a manner floats, in its normal position in the pelvic cavity in a state of equilibrium. Under natural conditions when this state of equilibrium is disturbed it is quickly and readily regained as soon as the disturbing agency has ceased to operate. The uterus is endowed with a greater degree of mobility than any other internal organ in the body. Its position is normally altered by every respiratory act, descending with inspiration and rising with expiration. It is pushed backward as the bladder fills and forward by a full rectum and upward when both these organs are filled. Its position is changed by change of posture. It may be greatly displaced in a bimanual examination only to immediately return to its normal position which may vary considerably within certain limits. So to constitute a displacement the condition must be **continuous and more or less fixed**. Should the uterus become fixed or immobilized in what is called its "normal position" such a condition would be pathological. Limitation of physiological mobility is therefore one of the principal elements in a displacement.

The uterus is maintained in its normal position by a combination of agencies, no one of which is wholly sufficient, yet the failure of any one tends to

upset the equilibrium and to produce a displacement. Of these agencies the chief is the pelvic floor composed of the levator ani muscles with their associated lesser muscles and fasciae. These form the pelvic diaphragm, the "pelvic sling." They are the structures closing the pelvic outlet and are the foundation support of the pelvic organs. When their function is lost displacement is almost inevitable, sooner or later.

The adjacent organs not only afford a bed upon which the uterus lightly rests when all is well, but when equilibrium is disturbed they afford some actual assistance in the maintenance of position. The bladder and anterior vaginal wall in front and below, the pressure of the intestines upon the superior surface of the fundus, the posterior vaginal wall and the rectum posteriorly are all factors in preserving position. These agencies must be in normal condition. Should they become atrophic or otherwise lose their tone they cease to provide support. Should they become congested or inflamed their additional weight would serve to disturb rather than maintain position.

The abdominal walls have an important, though an indirect, influence on uterine position. When they are in normal tone they assist in maintaining the position of the abdominal organs and prevent their descent and pressure upon the pelvic organs. That their "sustaining power" is more than this, I doubt.

The uterine ligaments possess a certain degree of elasticity, or tone, which operates in a slight degree to restore equilibrium after it is disturbed. They give but little active support to the uterus until a considerable degree of displacement has occurred.

Posture is an important factor in the maintenance of equilibrium. It operates not only through its effect on the abdominal walls, as will be mentioned later, but also by changing the plane of the pelvic brim and allowing abdominal pressure and the abdominal organs more direct access to the pelvis. When the normal lumbar curvature is maintained the plane of the pelvic inlet approaches the perpendicular in the upright position and the uterus is snugly ensconced beneath and behind the promontory of the sacrum. Here it is fairly well protected from the influence of the intra-abdominal pressure and the weight of the abdominal organs (Fig. 4). With a slumping of the body a straightening of the lumbar curvature occurs, the plane of the pelvic inlet is made more nearly horizontal, giving an invitation, as it were, for abdominal pressure and the abdominal organs to enter the pelvis.

Abnormal size or weight of the uterus would tend to upset equilibrium, in time, even though the other elements of support were in every way normal.

Before diagnosing a displacement the condition of the bladder and rectum should be known. It is possible for a retroversion to disappear after emptying a distended bladder and for an anteversion to be removed by emptying an impacted rectum. In fact, these organs should be emptied before an examination is made.

Theoretically displacements may occur in any direction. Actually they occur most frequently in a forward and backward and a downward direction. Occasionally lateral displacements are seen. Combinations of these displacements may occur as antero-lateral, postero-lateral, or some degree of torsion with or without an accompanying displacement. Downward displacements are commonly in a backward direction also.

Of the anterior, posterior and lateral displacements two forms are described, flexions and versions. A flexion is a condition in which the uterus is bent upon itself and the angle existing between the body and the cervix is disturbed. The point of bending is usually at the junction of the body and the cervix, though it may rarely occur at some other point. Either causing or resulting from the flexion there is a diseased or weakened condition of the tissues at the point where it occurs, giving rise to a two-fold pathological condition in flexions. A version is a turning of the uterus as a whole, the angle between the body and the cervix being unchanged.

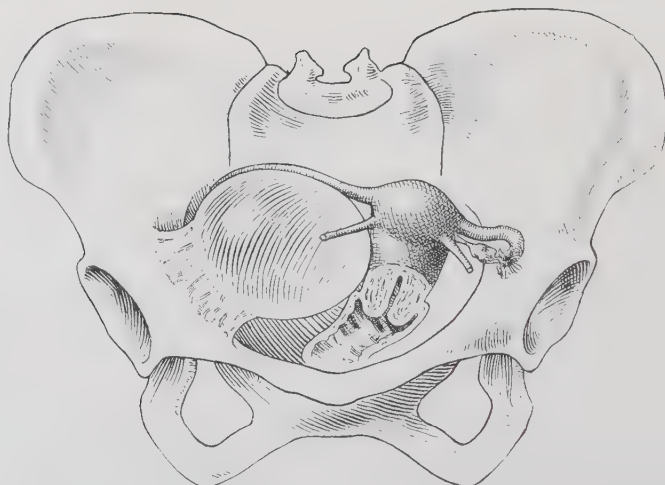


Fig. 12. Left Latero-version of the Uterus. The uterus is crowded to the left side of the pelvis, the long axis of the uterus inclines to the left. The cause of the displacement is a broad ligament cyst on the right side adherent to the wall of the pelvis. (Findley, Diseases of Women.)

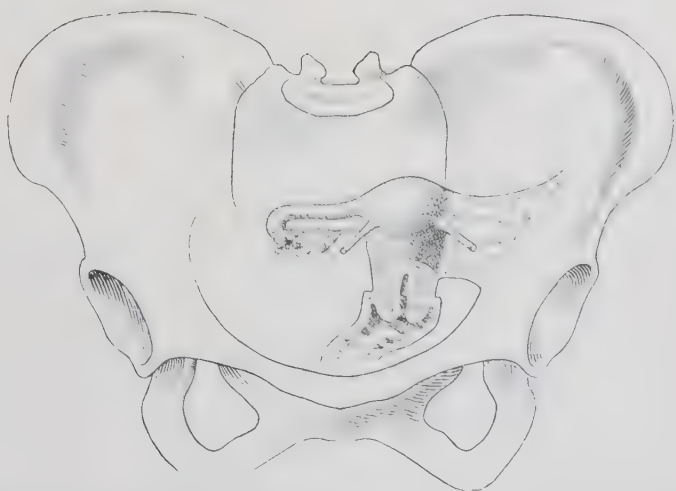


Fig. 13. Left latero-displacement of the Uterus. The left broad ligament is thickened and contracted and has drawn the uterus to the left. (Findley, Diseases of Women.)

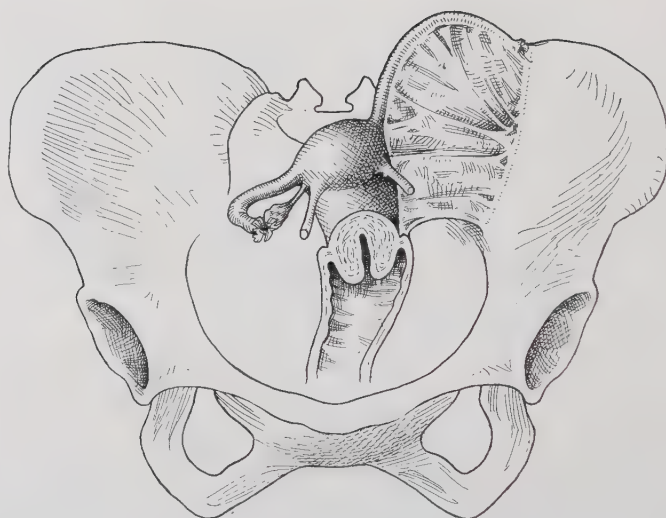


Fig. 14. Contraction of the left broad ligament drawing the uterus into a left lateral position. (Findley, Diseases of Women.)

Lateral Displacements.

A slight degree of lateral displacement may be considered normal and is probably due to a congenital shortening of the broad ligament of one side. Some authorities claim that the uterus lies nearer the left than the right side of the pelvis. Such conditions interfere with mobility very slightly, if at all, and have no pathological significance.

An abnormal lateral displacement usually occurs as a secondary and minor accompaniment of one of the other forms of displacement. It may, however, occur alone or as the predominant disorder. In such cases the uterus may be forced toward one side of the pelvis by some form of pelvic tumor or by the swelling from some pelvic inflammation originating on the opposite side. In the latter case the uterus may be later displaced toward the side upon which the inflammation originated by the contraction of the inflammatory exudate. Adhesions resulting from such inflammatory exudate are the most common cause of lateral displacements. (Figs. 12, 13, 14.)

DIAGNOSIS. While lateral displacements of the uterus are not frequent their occasional occurrence must be borne in mind for they may be mistaken for other conditions. The laterally displaced uterus may retain its form, size and consistence though the conditions causing the displacement, or

the results thereof, may alter all of these. If the uterus is uniformly drawn to one side the cervix is of course displaced. If latero-flexed this is not necessarily so, but the fundus will be palpated somewhere between the median line and the lateral wall of the pelvis. This condition will be verified by its absence from its normal position. If a latero-version be present the cervix points away from the side toward which the fundus is directed. Mobility is decreased in either form of lateral displacement.

Various inflammatory conditions may be confusing. Inflammation in the connective tissue lateral to the cervix and uterus will cause an indurated mass of varying size in the pelvis. This induration as a rule is very dense and often extends to the pelvic wall. It is associated with tenderness and usually marked decrease in mobility. If the inflammation is acute, local heat as well as general temperature will be present. There will be a casual history of labor, abortion, cervical injury or an operation about the cervix or uterus. The inflammation may have progressed to abscess formation in which event fluctuation may be detected, depending upon the thickness of the walls surrounding the abscess cavity.

The uterine tube may be inflamed, thickened, nodular, dilated and filled with fluid and involved in peritoneal adhesions. Such a mass usually lies op-

posite or level with the fundus and is distinct from the uterus. It may be movable unless anchored by adhesions. When the tube is filled with fluid its characteristic sausage shape and fluctuation can be detected. It can often be traced back to the cornua of the uterus and the identity of the uterus determined.

The ovaries when prolapsed or when enlarged from inflammation or the formation of any form of tumor may simulate a latero-flexion. An ovary has a peculiar tenderness giving rise to a peculiar sickening pain on pressure. It is usually movable, but may sometimes be bound down by adhesions. Its size, shape, position, peculiar sensitiveness and consistency are characteristic. When cystic it is soft in consistence but when chronically inflamed it is firm. On careful palpation, if not fixed by adhesions, its attachment to the tubo-ovarian region can be determined.

A small uterine fibroid developing between the layers of the broad ligament is attached to the side of and is usually movable with the uterus. Its firm consistence, well defined borders and absence of tenderness will usually make a diagnosis easy. Occasionally a solid tumor of the tube or ovary is found which either because it is intra-ligamentary or is confined to the lower part of the pelvis by adhesions, may resemble a latero-flexion. It is less tender than

an inflammatory mass and more definite in outline.

An ovarian or par-ovarian cyst may sometimes develop close to the cervix. They are spherical as a rule and fluctuation can usually be detected.

In all cases of displacement the absence of the uterus from its normal position must be determined as well as its location in an abnormal position.

TREATMENT. The same general plan of treatment is followed in these cases as will be outlined in the treatment of the more common displacements.

Upward Displacement or the Elevation of the Uterus

This is least frequent of the pathological displacements. It normally occurs with pregnancy as the uterus rises into the abdominal cavity.

The pathological cause are growths below which force the uterus upward or tumors of the ovaries or the uterus, which rise out of the pelvis and draw the uterus upward with them. Occasionally adhesions form during pregnancy, between the abdominal wall and the uterus, so that after the termination of pregnancy the uterus remains suspended by these adhesions from the abdominal wall. Operations involving both the uterus and the abdominal wall may be followed by adhesions which prevent the proper descent of the uterus.

Torsion of the Uterus.

This condition is a twisting of the uterus on its long axis. It is usually associated with the more common displacements and is caused by pressure or traction action so as to rotate the uterus on its axis.

The treatment of these unusual displacements will readily suggest itself after a study of the more common ones.

Anteflexion.

This is a condition in which the body of the uterus is bent forward on the cervix which occupies its normal position, or in which the cervix is bent forward on the body which remains in its proper location, or in which both body and cervix are bent forward. (Figs. 15, 16, 17.) The first of these is called Corporeal Anteflexion, the second Cervical Anteflexion and the last Cervico-Corporeal Anteflexion. Anteflexion is also classed by some into first, second and third degrees according to the angle produced. Such classification is of but little practical value. Opinions differ widely not only as to the relative frequency of anteflexion, but as to its pathological importance when it does occur. By some writers it is given first place in frequency while others scarcely mention it at all. Its symptoms pass unnoticed by some and are recited at great length and accorded much importance by others. This difference of opinion is

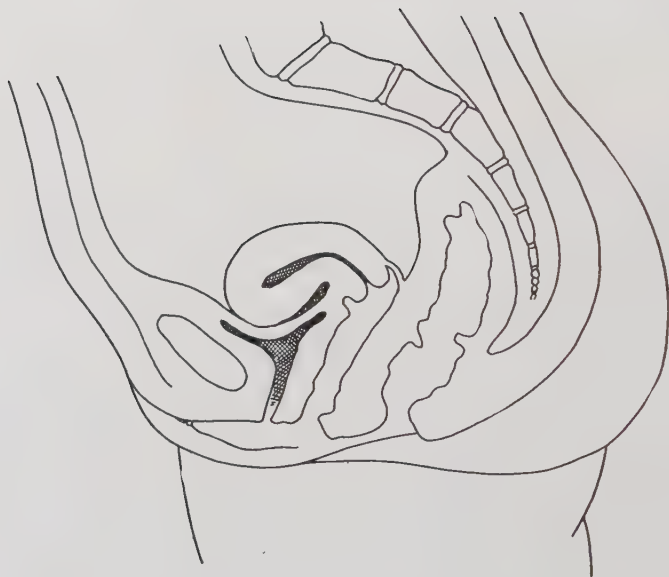


Fig. 15. Corporeal Anteflexion.

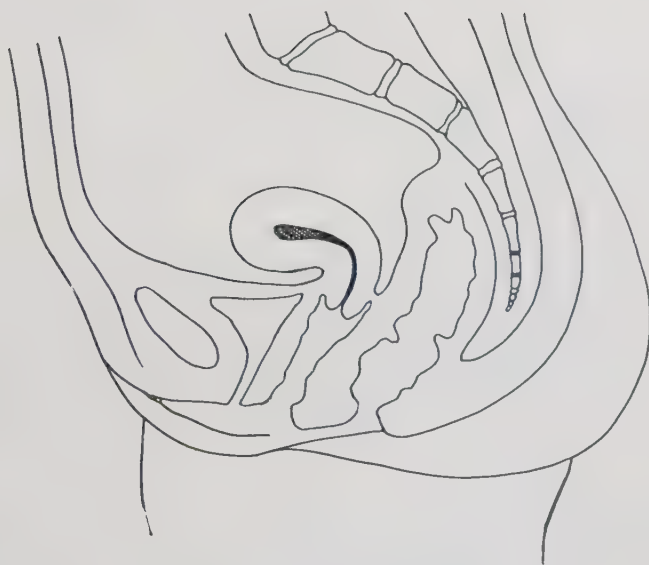


Fig. 16. Cervical Anteversion.

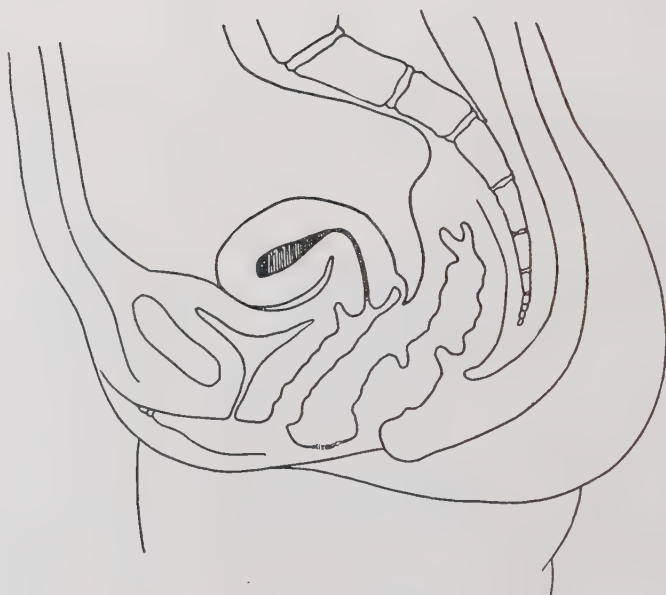


Fig. 17. Cervico-corporeal Anteflexion.

due to the fact that the uterus is normally slightly anteflexed, the degree of which is variable. The point at which this anteflexion becomes pathological depends upon no fixed standard but upon the opinion of individual physician. Where one sees an extreme degree of normal anteflexion another finds a pathological condition. The one seeing a normal condition naturally does not attribute symptoms to it.

The true state of affairs is found between these extremes. It does occur with relative frequency and is often the cause of annoying and sometimes very distressing symptoms.

Its occurrence is favored by the normal anteflexion in which position the uterus is kept by intra-abdominal pressure and the attachment anteriorly of the round ligament. This malposition is more frequent in virgins and nullipara than in those who have borne children.

As heretofore mentioned, a flexion indicates a two-fold pathology, a displacement plus a diseased or weakened tissue. The consistence of normal uterine tissue is such that if the organ be flexed, it will spontaneously return to its original position when the pressure is removed. So in every case of anteflexion there must occur a weakening of tissue at the point of flexure or the normal tissue rigidity must have been overcome, to be later replaced by a more resistant pathological rigidity. This final pathological

rigidity is most probably due to congestion and inflammation of the uterine wall occurring on the compressed or concave side of the flexure, to be followed as resolution of the inflammation occurs, by atrophy of the uterine musculature and scar tissue development.

CAUSES. (1) Deranged Spinal Innervation. This produces a predisposition to anteflexion. It would be impossible to foretell in a given case the exact manner in which such a disturbance might operate. Much would depend upon this length of time the disturbed innervation had existed; the particular direction the aroused reflexes might take; the pre-existent or accompanying predisposition, etc. However, we would expect this cause to manifest itself in one of several ways.

(a). By causing loss of uterine tone. (b). By causing contraction of sarco-uterine ligaments which are rich in involuntary muscular fibers. (c) By interference with vaso-motor nerves resulting in congestion and hyperplasia with consequent increase in weight.

(2). Endometritis and Metritis. These two conditions, usually associated to some extent, are one of the chief agencies weakening the tissues, the normal tissues being replaced by hypertrophied glandular and hyperplastic areolar tissue. At the same time a corporeal endometritis increases the weight of the

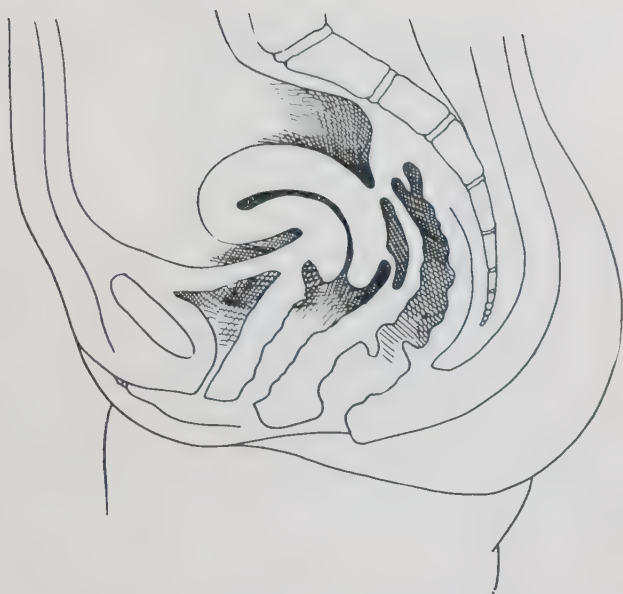


Fig. 18. Anteflexion Caused by Adhesions.

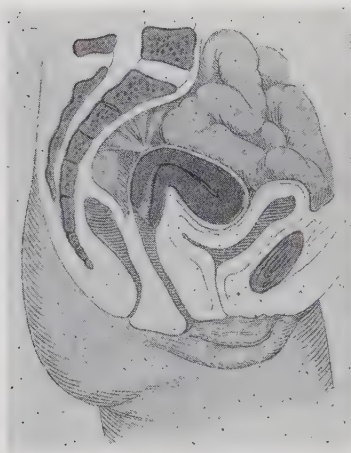


Fig. 19. Anteversion of Uterus from posterior perimetritic adhesions or contracting parametritic exudates of Douglas' folds at the level of the internal os. The perirectal adhesions produce pain and constipation. (Schaeffer, Atlas and Epitome of Gynecology.)

uterine body, adding to its normal tendency to anteversion. Acting in a similar manner are continued passive congestion and subinvolution.

(3). Inflammatory Adhesions. Figs. 18, 19.) These are the most frequent causes of anteversion. They are formed chiefly of connective tissue, and are the result of a previous inflammation of the connective tissue, posterior to the cervix and in the sacro-uterine ligaments. The organization and contraction of the inflammatory exudate draws the uterus usually at the cervico-corporeal junction, backward and upward. At the same time intra-abdominal pressure on the superior surface of the fundus and the natural tension off the posterior vaginal wall upon the cervix in a downward and forward direction, cause the uterus to bend forward at the cervico-corporeal junction, rendering the normal angle at this point more acute. It sometimes happens that the contraction in the ligaments is not equal on the two sides and some degree of latero-flexion or latero-torsion will be produced.

Rarely, adhesions may be formed anteriorly which either pull the fundus forward or immobilize the cervix so that it cannot recede when the fundus is forced downward by intra-abdominal pressure.

(4) Increased Intra-abdominal Pressure. This may be from muscular efforts, improper corseting, coughing, tumors or ascites. Abdominal ptosis, in cases in which the pelvic floor is unimpaired, may in-

crease the normal pressure the superior surface of the fundus is called upon to bear and force it downward. So, also, improper posture, such as the slumped position over a sewing machine or elsewhere. This position obliterates the anterior lumbar curve and allows the abdominal contents easier access to the pelvis, causing a relatively increased pressure on the fundus. Should the vaginal walls be slightly shorter than the average so that the cervix can not move backward, as the fundus is forced downward, some degree of ante flexion is inevitable.

(5.) Errors in Development. There may be persistence of the infantile form of uterus, a small body with a relatively much larger cervix lying practically in the same direction as the vagina. The cervico-corporeal junction being flexible, as the fundus develops the cervix fails to extend and a decided ante flexion results. In some of these cases the uterus remains infantile in size. This condition is quite different from a small adult uterus. More often the uterus will be of normal size but in an extreme degree of ante flexion. If it is truly infantile there is usually a corresponding lack of development in the ovaries and perhaps the vagina also.

(6.) Impacted Rectum. This may in rare instances and extremely pronounced cases, by pressure, cause the cervix to bend forward upon the fundus.

SYMPTOMS. The most prominent symptoms of

anteflexion are, dysmenorrhoea, sterility, irritable bladder and reflex nervous disturbances.

The cause of the dysmenorrhoea in these cases has not been positively determined. That it is due to an obstruction to the egress of the flow by the bend in the cervico-uterine canal is denied by those who claim that a sound can easily be passed under these conditions, showing an absence of obstruction. There is a vast difference, however, between passing a rigid sound from without the uterus inward and the passage of fluid from within the uterus outward. In some of these cases the similarity of the pains to labor pains almost convinces one that this miniature labor is due to some obstruction. Yet the proponents of the no-obstruction theory declare these characteristic pains occur when the uterus is perfectly empty and even hours before the flow passes from the blood vessels into the uterine cavity. Doubtless enough attention has not been given to the rigid and unyielding tissue at the point of flexion, and the pressure upon nerve terminals by the congestion preceding and accompanying the flow. When this congestion is relieved by a copious discharge of menstrual blood, the pain is relieved. Certainly sufficient importance has not been accorded the part that irritation of the "pelvic brain," the cervico-uterine ganglion, plays in the dysmenorrhoea and other disturbances arising in this condition.

Sterility is common in cases of anteflexion.

That it is due to an obstruction to the passage of spermatozoa through a passage that allows free egress of the menstrual flow does not seem reasonable. Some degree of endometritis with an accompanying leucorrhoea is often present and doubtless has something to do with the sterility. Ovaritis and salpingitis are not infrequent especially in the cases due to inflammatory adhesions. These, too, may play a part in causing the sterility. Yet more important in my opinion, is some trophic disturbance from involvement of the cervico-uterine ganglion, either affecting the mucous membrane of the uterus so that it does not afford the normal favorable condition for the lodgement of the fertilized ovum, or affecting the vitality of the ovum itself so that it fails to become fertilized.

Irritability of the bladder is not quite so common as are the foregoing symptoms. It is usually expressed by frequent urination and tenesmus. This may be due occasionally to the pressure of the ante-flexed fundus; though more often to traction on the bladder walls through their intimate connection to the cervix, as the latter is pulled backward and upward by the contracting inflammatory adhesions. The relationship through blood and nerve supply is very intimate and the disturbance of these accounts for some of the bladder symptoms.

Some degree of rectal disorder may be present if contractured adhesions along the course of the

sacro-uterine ligaments draw the uterus backward, and constrict or irritate the rectum.

The nervous disturbances are varied. There are almost innumerable paths they may take. They usually follow the path of least resistance, that is, to some reflexly connected organ whose nerves have been previously affected by some disturbed spinal innervation. So we may find headaches, disturbed vision, dyspepsia, epigastric pain, backache, etc.

Anteflexion predisposes to abortion and to excessive nausea and vomiting should pregnancy occur.

DIAGNOSIS. In no case should a diagnosis be made from the direction in which the cervix is pointing, which is usually in the direction of the axis of the vagina, as either a cervical or a cervico-corporeal anteflexion is most frequent. Without further examination it might be mistaken for a retroversion. By careful bimanual palpation the fundus will be located and the angle between it and the cervix will be found to be more acute. In stout women this change in the cervico-corporeal angle can be more easily and distinctly palpated with the patient in Sim's position.

In cases due to contracture along the sacro-uterine ligaments the cervix is higher than normal, forward mobility especially is impaired and on careful bimanual or recto-abdominal examination the cicatricial bands can be felt.

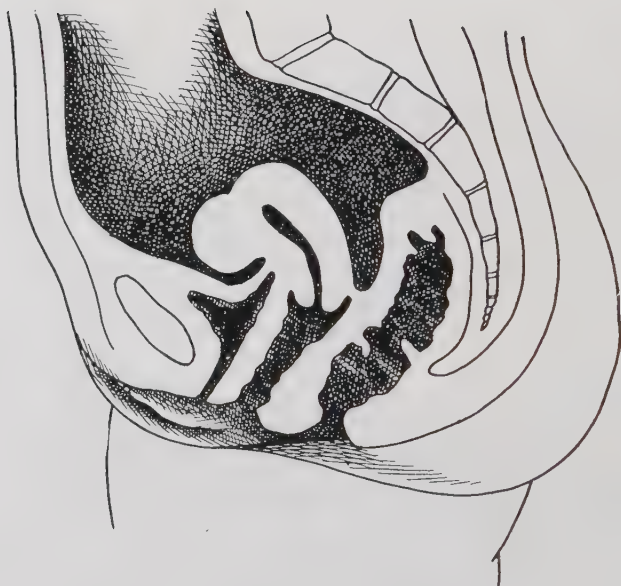


Fig. 20. Fibroid in Anterior Uterine Wall Resembling an Anteflexion.

A small fibroid in the anterior uterine wall (Fig. 20) may closely resemble an antelexion and when bimanual examination does not make the diagnosis clear, the passing of a sound into the uterus may do so.

Occasionally inflammation in the connective tissue between the cervix and bladder may prove confusing. This lacks the distinct outline of the fundus and has a causal history. Should abscess formation have occurred fluctuation may be present. Very rarely a hematoma may collect between the uterus and bladder. If recent the history and the fluctuation of the mass will aid in diagnosis. The possibility of malignant infiltration in this region or tumor or disease of the bladder must also be borne in mind.

In cases preceded by extensive inflammation of the pelvic peritoneum or connective tissue a diagnosis may be extremely difficult.

TREATMENT. The intra-pelvic technic to be employed is especially applicable in those cases due to inflammatory adhesions or cicatricial bands. These are usually attached to the posterior surface of the uterus at or about the junction of the cervix and body and pass backward, outward and upward to the front and sides of the sacrum on either one or both sides. If it is possible such bands should be relaxed. This is best accomplished by placing two fingers of

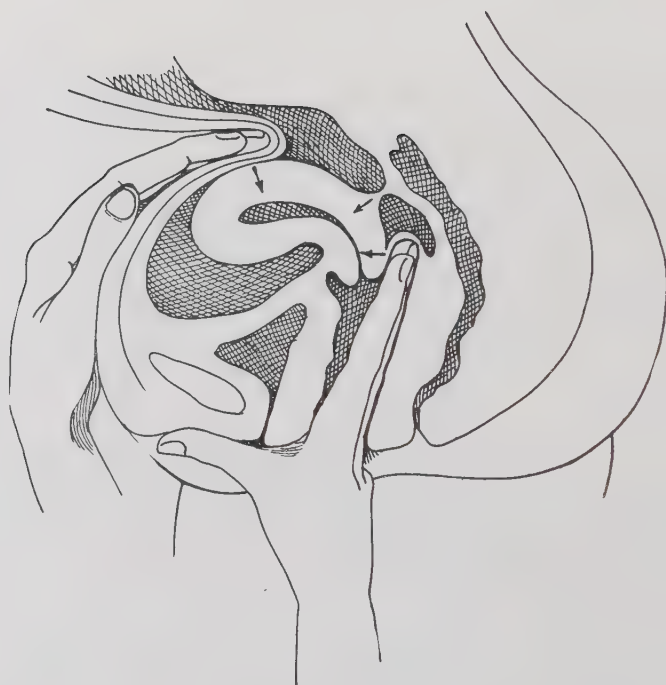


Fig. 21. Replacement of an Antelexion Caused by Adhesions.

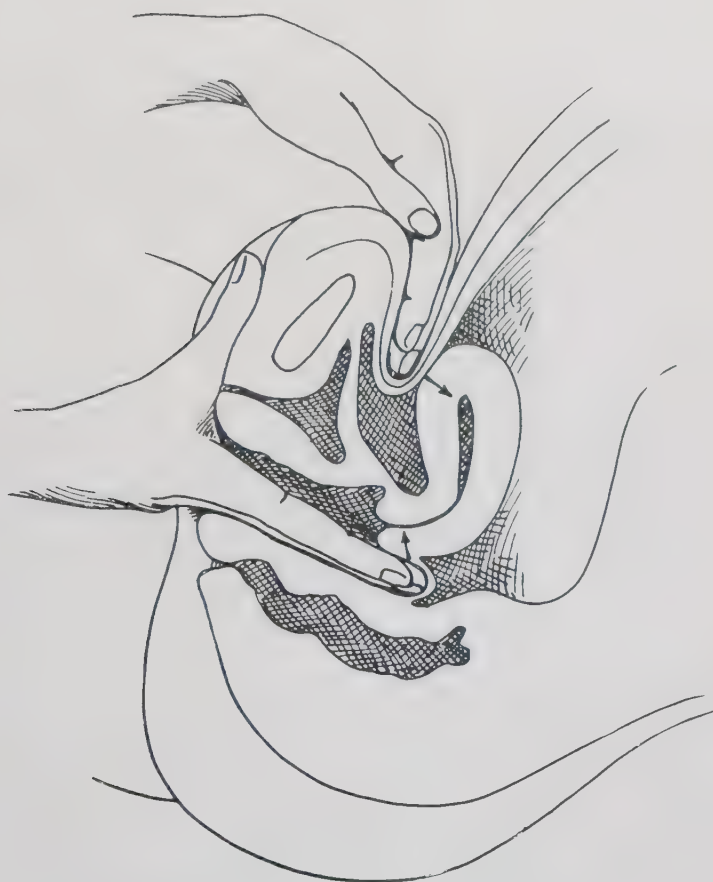


Fig. 22. Straightening an Anteversion.

the right hand in the posterior vaginal vault behind the cervix, and then by pressure from above on the abdominal wall insinuate the fingers of the left hand behind the fundus and approximate the fingers of the two hands, (Fig. 21). The uterus is now pulled forward and downward to the point of toleration of the patient, and while the adhesions are thus stretched they are manipulated, transversely, from origin to insertion, by either of the two hands. It often happens that they can easily be manipulated between the fingers of the two hands. The angle of flexion should receive attention. The uterine tissue itself as well as the connective tissue immediately surrounding this point should be manipulated and relaxed as thoroughly as possible. The uterus should be straightened by pressing the apex of the angle forward with the internal fingers, while the fundus is pressed backward by the external hand, (Fig. 22). It should be held in this position for a few seconds, the idea being to make the cavities of the cervix and body a straight line and by over correction, restore as nearly as possible the normal cervico-corporeal angle.

It may require several minutes to execute this technic which applies to any form of ante flexion. It may be repeated as soon as the effects of the previous treatment have worn off.

This method of treatment goes far toward relieving any endometritis or metritis present. It re-

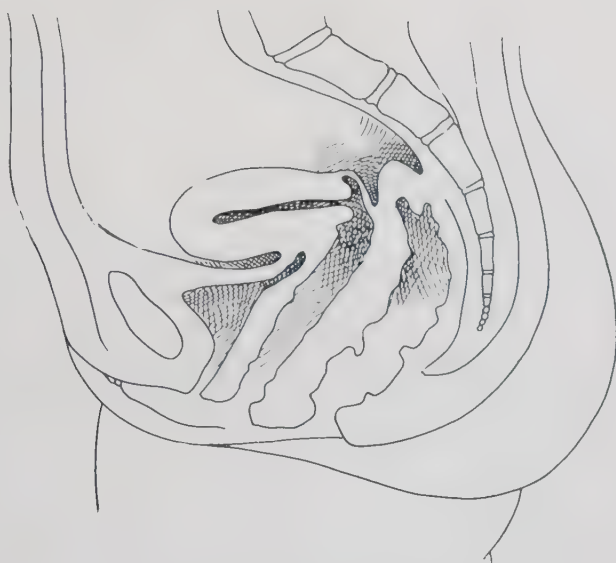


Fig. 23. Anteversion.

stores normal mobility when such is possible. It relieves pressure upon the cervico-uterine ganglion and normalizes circulation by opening blood and lymph channels. It tends to reduce whatever obstruction may be caused by the angulation and in this way often cures the dysmenorrhoea and sterility.

Anteversion.

This is a condition in which the uterus is rigid and the cervico-corporeal angle is either normal or extended, the fundus is turned forward and downward and the cervix passes upward and backward. The normal flexion and flexibility of the uterus is lost and the cervix and the body form one rigid whole (Fig. 23).

This is neither so frequent nor so troublesome a condition as anteflexion.

CAUSES. (1). The general causes are very similar to those of anteflexion, the difference in the conditions being the unchanged or extended cervico-corporeal angle and the rigidity of the tissue at this point in anteversion. Disturbed spinal innervation operates as in anteflexion.

(2.) Chronic congestion, endometritis, subinvolution, tumors, pregnancy, etc. All of these conditions increase the weight of the uterus and cause it to tip forward when the individual is sitting or standing.

(3). Inflammatory Adhesions. These may rarely be in the anterior portion of the pelvis and draw the fundus forward and downward. More frequently they are along the course of the sacro-uterine ligaments, and draw the cervix upward. The cervico-corporeal angle being rigid, the fundus of necessity tips forward.

(4). Increased abdominal pressure. Tight clothing, improper corseting, muscular efforts, ascites, tumors, etc, all tend to force the fundus downward.

(5.) Posture as in anteflexion.

(6). Violence, as falls upon the feet especially when the bladder is empty.

PATHOLOGY. The uterus is congested, enlarged, and a low grade of endometritis, metritis, or both, is usually present. Adhesions anteriorly are rarely seen, but are common posteriorly. A tube or ovary adherent to the anterior pelvic wall is occasionally found.

When not involved in adhesions the sacro-uterine ligaments are retracted from non-use. Some degree of cystitis may be present.

SYMPTOMS. These are not as pronounced and constant as in anteflection. Anteversion of pronounced degree may exist for years with but few if

any symptoms. They are to a large extent due to the associated endometritis and metritis.

Vesical irritability is perhaps more common than in anteflexion. It is caused by the pressure of the fundus upon the bladder as well as by the associated cystitis.

Dysmenorrhoea and sterility are less common than in anteflexion. They may be caused by the close apposition of the external os to the posterior vaginal wall, though more probably by the chronic endometritis so commonly present. In those cases in which the fundus points downward and is on a lower level than the cervix, pain may be caused by the increased contractions necessary to expel the flow against the influence of gravity.

Menorrhagia, metrorrhagia and leucorrhoea are occasional symptoms, doubtless due to the accompanying congestion and endometritis.

Rectal symptoms are sometimes seen. An irritation, sometimes amounting to tenesmus, may result from the pressure of the cervix against the rectum. An obstructive constipation may result from the same cause.

DIAGNOSIS. On digital examination the cervix is higher than normal. It is reached with difficulty and is directed backward toward the hollow



Fig. 24. Replacement of an Anteversion. First Step.

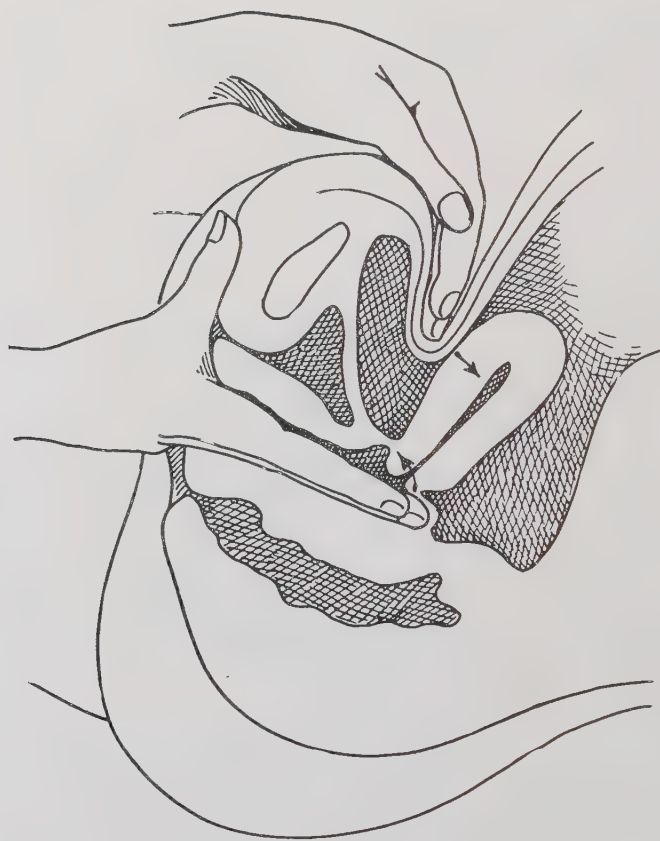


Fig. 25. Replacement of an Anteversion. Second Step.

of the sacrum. In extreme cases it may be directed somewhat upward. On passing the finger forward to the anterior vaginal vault the inferior surface of the body can be felt passing forward toward the symphysis. A careful bimanual examination should be made to confirm this position. The diagnosis is made from the extended position of the uterus, the cervix high, the fundus low, and the rigidity of the organ as a whole.

TREATMENT. This should begin with a removal of causes. These are most frequently inflammatory adhesions along the course of the sacro-uterine ligaments. The treatment of these differs in no way from the treatment of such adhesions described under antelexion. The congestion, endometritis and metritis are treated by securing normal mobility for the uterus and by direct manipulation of the organ itself and to the tissues immediately surrounding it. The uterus can be bimanually replaced by passing two fingers of the right hand into the anterior fornix of the vagina and lifting the fundus upward as far as possible at the same time an attempt is made by placing the fingers of the abdominal hand just above the symphysis, to approximate the fingers of the two hands in front of the fundus (Fig. 24). By this means the fundus is not only prevented from returning to its abnormal position, but can be pushed further backward and upward. The intravaginal fingers should now be placed in the posterior vaginal

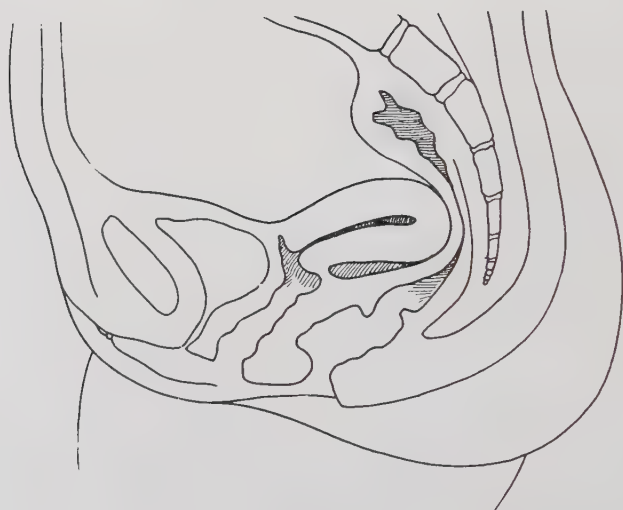


Fig. 26. Retroversion.

fornix and the cervix drawn downward and forward, the fundus being simultaneously pressed upward and backward with the abdominal hand (Fig. 25).

This attempt at replacement should be made at every treatment, but it will not be permanently successful until the adhesions have been relaxed and the accompanying congestion or inflammation relieved.

The other causes are to be relieved by the usual methods.

Backward Displacements.

These are said not only to be the most frequent of displacements, but the most frequent of pelvic disorders.

Of the backward displacements there are two: retroversion and retroflexion.

In retroversion the uterus is fixed in a position in which the fundus points upward, or backward, the cervix more or less downward or even forward or upward, the cervico-corporeal angle being unchanged or slightly extended. (Fig. 26).

The normal flexibility of the uterus is lost and the organ is rigid. The general condition of the uterus is very similar, but its position is the reverse of that seen in anteversion.

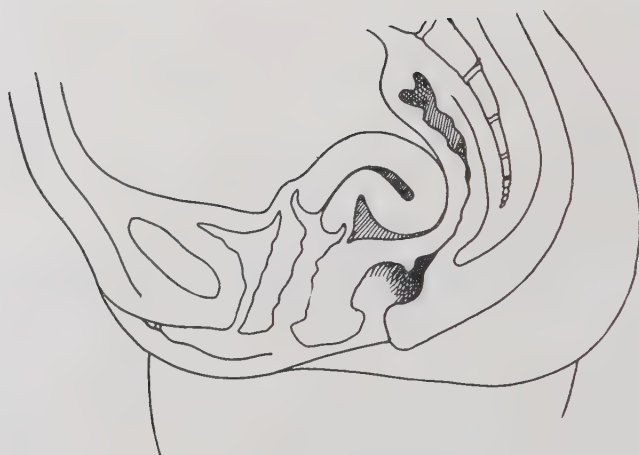


Fig. 27. Retroflexion.

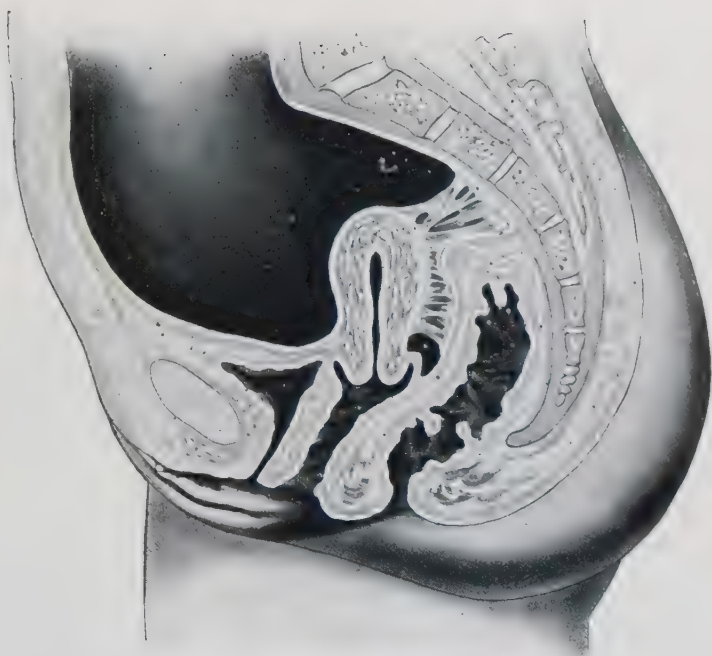


Fig. 28. Retroposition and retroversion of the uterus, with fixation. Peritoneal adhesions bind the posterior surface of the uterus to the sacrum and rectum, holding the uterus firmly in retroversion and retroposition. (Findley, Diseases of Women.)

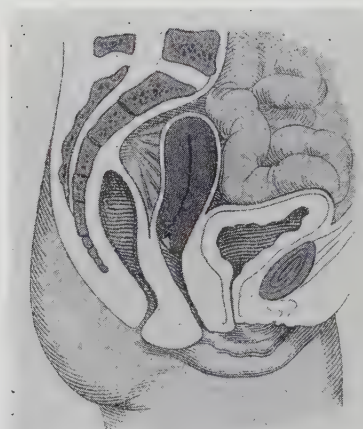


Fig. 29. Retroversion of a Fixed Uterus. The uterus is vertical and is fixed by sacro-uterine and recto-uterine adhesions—the contracted and shortened uterine ligaments. Vagina put on the stretch by the elevation of the uterus.

In retroversions the chief causes for the deviation are changes in the ligaments; in retroflexion, changes in the uterine parenchyma, together with changes in the ligaments. Retroversion easily passes into retroflexion. If the adnexa are not bound down in Douglas' pouch, they usually lie above the uterus and laterally. (Schaeffer, *Atlas and Epitome of Gynecology*.)



Fig. 30. Retroflexion of a Fixed Uterus—uterus bound down throughout its entire length to serosa of Douglas' pouch by perimetritic adhesions. Cervix forced anteriorly, anterior lip thinned, the anterior cervical wall likewise; posterior lip thickened. Vagina thrown into folds by the descensus. Pressure of the intestines upon the uterus. (Schaeffer, Atlas and Epitome of Gynecology.)



Fig. 31. Retroposition of the Uterus. The uterus is drawn backward into retroposition by peritoneal bands of adhesions, extending from the supravaginal portion of the cervix to the sacrum. (Findley, Diseases of Women.)

In retroflexion the uterus is fixed in a position of flexion over its posterior surface. The fundus is directed backward or downward and the cervix downward and sometimes somewhat forward. The apex of the cervico-corporeal angle is reversed and points anteriorly. The general condition of the uterus is very similar, but its position is the reverse of that seen in anteflexion (Fig. 27). In most cases of backward displacement there is some degree of both retroflexion and retroversion, the cervix pointing downward and sometimes forward.

In practically all cases of backward displacement there is associated some downward displacement as well.

CAUSES. (1). *Deranged Spinal Innervation.* This causes relaxation of uterine tissue and ligaments and by vaso-motor disturbances causes congestion which naturally increases the weight of the organ, and if continued will lead to chronic endometritis. In every case of pronounced retro-displacement the round as well as the sacro-uterine ligaments are relaxed. Relaxation of the sacro-uterine ligaments is a necessary part of the retro-displacement of the uterus of normal size. This is especially so in cases of retroversion. Without this the cervix could not move downward and forward, allowing the fundus to move backward and upward.

(2). Inflammatory Adhesions (Figs. 28, 29, 30, 31). These may occur high up posteriorly and by their contraction draw the fundus backward. They originate from the usual causes of inflammation of the pelvic connective tissue and differ from the adhesions causing anteflexion only in that they involve an area higher on the uterus, above the cervico-corporeal angle, and by their contraction draw the body of the uterus backward. In some cases the adhesions are seemingly peritoneal in origin and secondary to the displacement. These seem to be due to the irritation caused by the opposed posterior surface of the uterus against the posterior wall of the pelvis. Often the uterus feels to bimanual palpation, as though it were glued to the posterior wall of the pelvis. No doubt the colon bacillus is an important factor in the low grade, localized peritonitis responsible for these adhesions.

(3). Developmental Errors. The relatively long cervix of the infantile uterus directed in the axis of the vagina, a correspondingly small uterine body, with a short anterior vaginal wall will sometimes cause retroversion. I have seen some of these cases in which an infantile and retroverted uterus seemed to have developed in and to have been a part of the anterior rectal wall. Senile atrophy may act in a very similar manner and cause retroversion in the aged.

(4). Posture. Following delivery it is common to have the patient remain in the dorsal position for some time. In addition to this an abdominal binder is often applied. The increased weight of the uterus of itself tends to cause a retro-displacement. The application of an abdominal binder increases this, and it needs only a distended bladder (and this is not always necessary) to cause a retro-displacement. This danger of retro-displacement continues until involution is complete. Not only must the uterus have returned to its normal size and tone, but its supporting structures as well, pelvic floor, vagina, abdominal walls, ligaments, etc. Especially must this be so of the sacro-uterine ligaments whose normal tonicity prevents the forward and downward displacement of the cervix. It requires from six to eight weeks after confinement for this normal involution to be completed.

(5). Increased Intra-abdominal Pressure. This may result from muscular efforts, violent vomiting, tumors, ascites or improper corseting. Associated with it is usually increased weight of the uterus, especially of the fundus, as may result from pregnancy (in the early months) or subinvolution. Chronic constipation, with the presence of a fecal mass in the rectum pressing the cervix forward and thus tilting the fundus backward and allowing the intra-abdominal pressure to act upon its anterior surface, is also a definite factor. Habitual over-dis-

tension of the bladder by forcing the fundus upward and backward is also a predisposing cause. The sudden increase of pressure resulting from a fall, especially upon the sacral region or buttocks, may cause the retro-displacement of a previously normal uterus. Rarely the fundus is prevented from occupying its usual anterior condition by the failure of the descent of an ovary.

PATHOLOGY. Remembering the course of the blood and lymph vessels and nerves that supply the uterus, as they pass between the layers of the broad ligaments, and the distortion and pressure that must ensue when the fundus of the uterus as a whole is turned backward, one would expect some degrees of congestion or inflammation of the uterus itself. So it is. The uterus is enlarged, slightly prolapsed, and the endometrium is in a state of chronic inflammation. This is present in addition to whatever causative pathology that may have preceded the displacement. The chronic congestion or inflammation has extended to the tubes and ovaries also. These may be dragged backward and downward with the fundus. Adhesions being prominent among the causative factors are often seen. When not an etiological factor they may later develop from pressure, irritation, congestion and inflammation of the opposed peritoneal surfaces. Pressure of a deeply retro-flexed fundus has been known to cause gangrene of the posterior vaginal wall.

SYMPTOMS. Menstrual disturbances are common. Menorrhagia and metrorrhagia whether due to the secondary congestion and chronic endometritis or directly to the displacement, usually promptly disappear when replacement is effected, if no complications are present. The excessive bleeding sometimes leads to severe anemia with its associated symptoms. The presence of a retro-displacement may delay the occurrence of the menopause. The early reappearance of menstruation during lactation is sometimes due to a retro-displacement. Leucorrhoea is often present as a result of the congestion and chronic endometritis. Dysmenorrhoea is not a prominent symptom.

An obstructive constipation may ensue from pressure of the fundus upon the rectum. This may also give rise to a feeling of fullness in the rectum and occasionally may be an element in the production of hemorrhoids. Irritability of the bladder evidenced by frequent and painful urination is an occasional symptom. Retro-displacements may so distort the ureters as to cause kinks, leading to their partial occlusion. They are so frequently associated with inflammatory affections of the upper part of the urinary tract that the connection can hardly be always accidental.

A peculiar and rather distinctive sacral backache is often present in retro-displacement, and be-

sides this there may be an ordinary lumbar ache. Pains and weakness in the legs are not uncommon. A sense of weight and heaviness, a bearing down sensation in the pelvis is frequently present. This is easily aggravated by exertion, or standing, and is most common in the cases with complications. Pains and soreness about the ovaries result from the distortion of the blood vessels supplying them and the consequent congestion or inflammation.

Sterility is not so frequent as in ante flexion. It is in some cases apparently due to the displacement, though in most cases doubtless due to the complicating congestion and inflammation. Abortions frequently occur in retro-displacements. When pregnancy does occur and goes to term a spontaneous cure of the displacement sometimes occurs, if proper attention is given the patient.

The general nutrition suffers from the anemia and reflex gastro-intestinal or other disorders.

DIAGNOSIS. The diagnosis must be made from the physical findings upon bimanual palpation. On passing the two fingers of the right hand into the vagina, the cervix may rarely be found in its normal position and pointing in its normal direction in a case of retroflexion. Usually it is anterior to its normal position, is low and points downward, occasionally forward and in extreme cases of retroversion may be directed upward and be difficult to

reach. If the finger is now passed to the posterior surface of the cervix and directed upward a mass will be felt of the general size, shape and consistency of the body, and apparently continuous with the cervix. In some cases this tumor will be found below the level of the cervix in the retro-uterine fossa. As a mass in this position may be caused by other conditions it is necessary to determine the absence of the fundus from its normal position. This is done by bimanual palpation, the fingers of the abdominal hand and those within the vagina being approximated anterior to the cervix and the absence of the body of the uterus noted. The diagnosis may often be verified by a rectal examination, especially in fleshy individuals, by feeling the fundus through the anterior rectal wall.

Ordinarily the diagnosis of a retro-displacement is not difficult. Thorough acquaintance with the normal feel of the organ, familiarity with its size, shape, position, consistence, tenderness, and mobility, is indispensable. Certain conditions may, however, prove confusing.

A fibroid tumor occurring in the posterior wall of the uterus, or if pedunculated and behind the uterus or even when in the anterior wall of the uterus and displacing the organ backward, may require careful examination to make the diagnosis.

An enlarged and prolapsed ovary may be mis-

taken for the retro-displaced fundus. The characteristic tenderness and the presence of the fundus in its normal position will make the diagnosis clear. An enlarged and prolapsed uterine tube usually has a sausage shaped outline, and if filled with fluid, fluctuation can usually be detected.

An inflammatory mass back of the cervix is usually tender and lacks the distinct outline of the displaced fundus and presents a history of an acute inflammation. A hematoma or other product of an ectopic gestation, has its distinctive history and lacks the outline and consistence of the fundus. A fecal mass in the rectum is of putty-like consistence, can be indented upon pressure, is practically insensitive, is in the course of the rectum and can be removed by a properly administered enema.

Sometimes the use of a sound to determine the direction of the uterine canal may be necessary.

TREATMENT. Replacement of a retro-displaced uterus depends upon free mobility. Unless the uterus is freely moveable, replacement if effected is but temporary. A most careful bimanual examination must be made in every case to determine the cause of immobility, and the first indication in treatment is to remove such cause. Unfortunately this is not always possible.

Spinal innervation must be normalized. In-

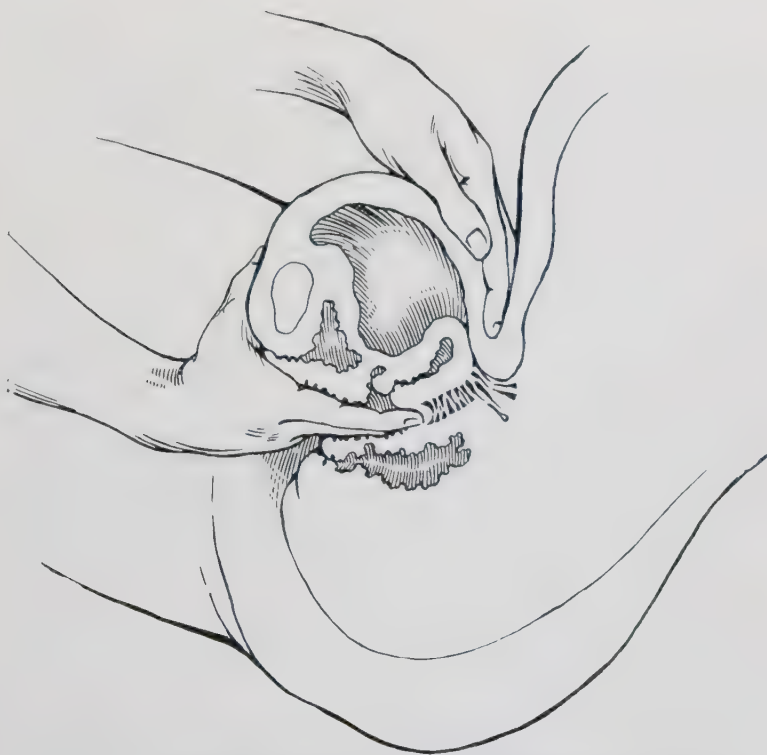


Fig. 32. Loosening the Uterus from the Posterior Pelvic Wall.

flammatory adhesions whether of connective tissue or peritoneal origin must be located and relaxed, as has been heretofore described. In some cases the uterus seemingly has to be "pried loose" from the anterior rectal or posterior pelvic wall, working downward with the abdominal hand and upward through the posterior vaginal vault or sometimes through the rectum with the intra-pelvic hand. (Fig. 32.)

Developmental errors offer an almost insurmountable difficulty, yet in some of these, apparently hopeless, after treatment, I have seen pregnancy occur and go to term, to be followed by full development of the uterus and remarkable improvement in the displacement. Senile cases do not as a rule cause much distress. If treatment is indicated stretching the tissues with replacement is usually beneficial.

Other contributing causes must be corrected or removed.

Replacement may be accomplished in several ways, no one of which will prove successful in every case. Personally I have been most uniformly successful by using a bimanual abdomino-vaginal method, with the patient in the dorsal position, head and shoulders somewhat raised to relax the abdominal muscles. The bladder, rectum and pelvic colon should be empty. In these cases it is often best to

have the patient brought to the end of the table so that, if necessary, you can not only stand between her knees and have the benefit of the weight of your body to press your fingers deeper into the pelvis, but can depress the wrist of the examining hand to assist in raising the fundus out of the recto-uterine excavation. The index and middle fingers of the right hand are passed into the posterior vaginal fornix against the posterior surface of the uterus, as near the fundus as possible. Steady pressure is now made upon the body of the uterus upward and forward along the sacrum and to that side of the sacral promontory toward which the fundus seems inclined. When it is medially placed either side may be selected, preferably the one toward which it most easily moved. It may be necessary to use considerable pressure and the manipulation may be rather painful, even when no adhesions exist. If the attempt causes too great pain or an undue amount of force seems necessary, it should be abandoned for the time being, and a careful search be made for the hindrance to replacement. As soon as the fundus is forced to the promontory of the sacrum by the fingers of the internal hand, an attempt is made to get the heretofore idle fingers of the external hand behind the fundus from above by gentle, firm pressure upon the abdomen. In doing this place the hand upon the abdomen, press the superficial tissues upward so that they may be carried with the hand and it will not be necessary to move the hand over the skin. Now by downward

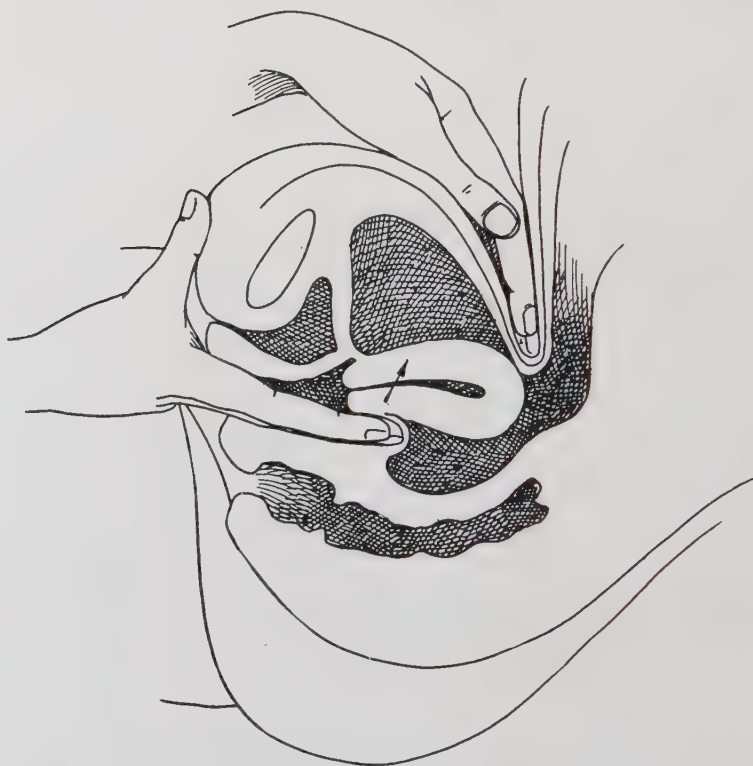


Fig. 33. Replacement of a Retroversion. First Step.



Fig. 34. Replacement of a Retroversion. Second Step.

and backward vibratory pressure penetrate the pelvis from above and behind the fundus. The desire is to lift the fundus upward with the internal fingers and at the same time insinuate the external fingers behind it from above, and so approximate, as nearly as possible the fingers of the two hands and turn the fundus forward into its normal position. (Figs. 33, 34.) This is the most difficult part of the technic. The fingers of the operator may be too short, or the depth of the vagina may be insufficient to allow the fundus to be raised high enough, or the abdominal walls may be too thick or too contracted, to allow the external fingers to get sufficiently behind the fundus to turn it forward.

In cases of retroversion external pressure deep into the pelvis immediately above the symphysis pubis, may so depress the cervix as to assist in tipping the fundus upward and forward. After the fundus is partially raised the index finger may be passed to the anterior surface of the cervix to press it backward and downward while the middle finger maintains the upward pressure upon the fundus so as to bring it in control of the external fingers. As soon as this is done the internal fingers are placed against the anterior part of the cervix and it is pushed backward and upward into the pelvis while the fundus is pressed downward and forward with the external hand. If the replacement is effected it is well to bring the uterus into a position



Fig. 35. Sims's or Left Lateral Position.

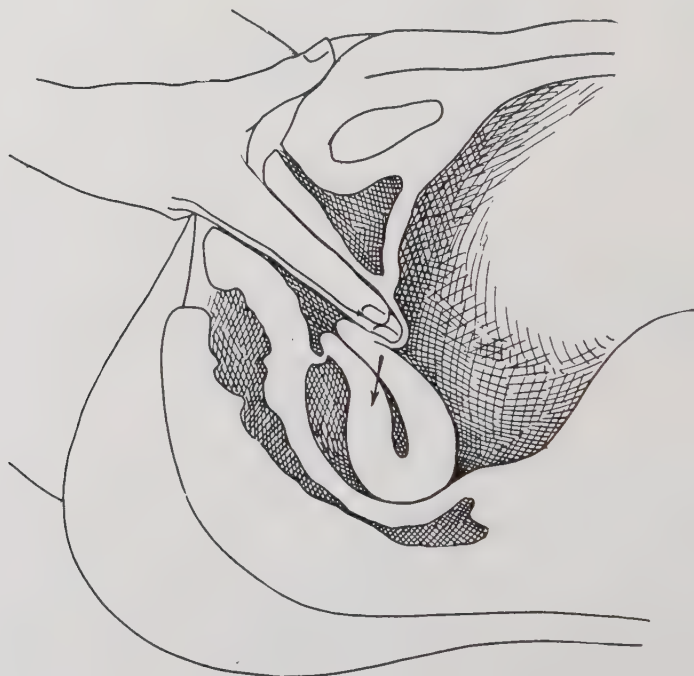


Fig. 36. Replacement of a Retroversion. Second Method.

of anteversion, and thus, as it were, over correct the displacement.

Occasionally better results may be obtained by lifting the fundus out of the recto-uterine excavation with the index or index and middle fingers introduced into the rectum.

An abdomino-recto-vaginal method is sometimes successful, the fundus being pushed upward by the index and middle fingers in the rectum while the cervix is forced backward by the thumb of the same hand in the vagina making pressure upon the anterior surface of the cervix. The abdominal hand lends the same assistance as before.

Again the Sims position (Fig. 35), or the knee-chest position may be used to advantage in dislodging the fundus from the depths of the pelvis. In either of these positions the index and middle fingers of the right hand are introduced into the posterior vaginal vault, the fundus is pushed upward and forward and while it is held in this position by the middle finger, the index finger is passed to the anterior surface of the cervix pushing it upward and backward.

Another method especially useful in retroflexion is to pass two fingers into the anterior vaginal vault and make backward pressure at the cervico-corporeal junction, or wherever the angle occurs, and

straighten out the flexion angle by pressure against the sacrum. The uterus is now pressed upward in the direction of the sacro-iliac articulation, to the side of the promontory of the sacrum, and the fundus reached and pulled forward by the external hand as already described. (Fig. 36.)

Dr. C. W. Young secures splendid results in retro-displacements and in other intra-pelvic disorders by the use of the index finger in the vagina and middle finger in the rectum. The other hand is placed upon the abdomen giving an abdomino-vagina rectal manipulation. (Journal of the American Osteopathic Association, May, 1918.)

Whenever possible the patient should assume the knee-chest posture for several minutes after replacement, and then lie down in the Sim's position so that gravity will tend to prevent the uterus from resuming its mal-position. Instruct her to assume the knee-chest posture for several minutes before retiring at night, and while in this posture have her separate the walls of the vagina so as to allow the entrance of air and thus balloon out its walls, securing the aid of atmospheric pressure as well as gravity in maintaining the proper position of the uterus. Other methods for maintaining proper position after it is once secured will be discussed in Chapter VIII.

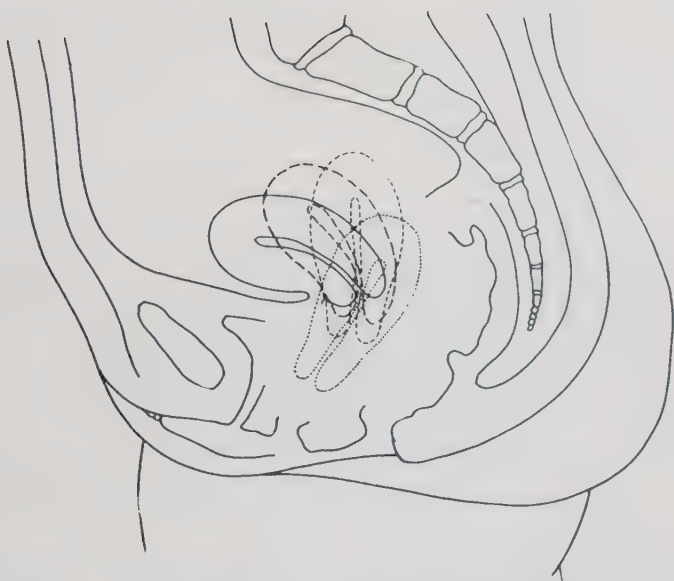


Fig. 37. Degrees of Incomplete Prolapse.

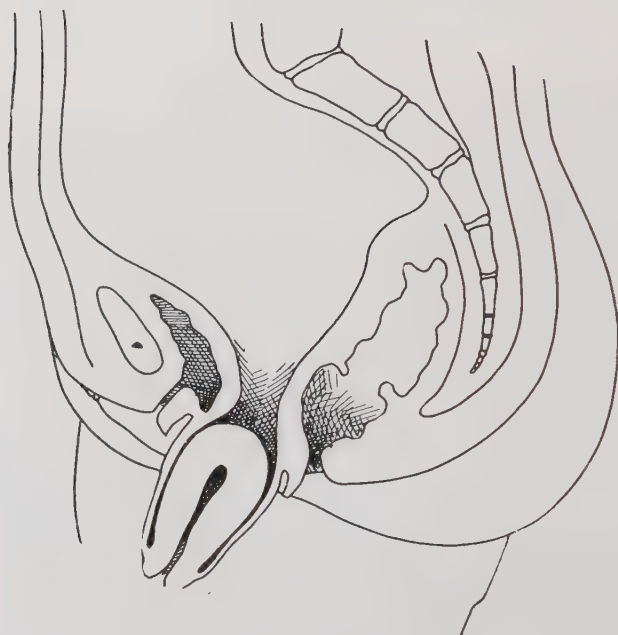


Fig. 38. Complete Prolapse.

Downward Displacement.

Prolapse of the uterus ordinarily called "falling of the womb" is a condition in which the uterus permanently occupies a lower level in the pelvis than is normal (Figs. 37, 38). This condition varies in degree from the slightest appreciable descent to that state in which the uterus is entirely without the pelvis and hangs between the thighs of the patient. In this case the vagina is turned inside out. In the majority of cases the cervix is above or just within the vaginal orifice. Often, however, it protrudes beyond the vulva. Different degrees are recognized, as first, when the cervix remains within the vagina; second when the cervix protrudes beyond the vaginal orifice, and third when the uterus is outside of the pelvis. When the uterus remains within the vagina it is called "incomplete" prolapse and when it is outside the vagina it is called "complete" prolapse or "procidentia uteri."

Of the several agencies retaining the uterus in normal position, the tissues forming the pelvic floor, the levator ani muscle, in particular, is of chief importance. It, more than any other single factor, opposes the action of gravity and intra-abdominal pressure and prevents the descent of the uterus. This is due largely to the position of the uterus relative to the opening in the muscle through which the vagina passes. The cervix overlaps this opening in the direction of the sacrum and the fundus in the di-

rection of the symphysis pubis so that the uterus extends beyond the opening in both directions, (Fig. 1) posteriorly and anteriorly. To allow prolapse of any considerable degree the cervix must either be brought forward or the opening must be enlarged so as to allow the cervix to slip into it. In all cases of prolapse of any considerable degree the cervix will be found anterior to its normal position. Complete prolapse is restrained, but not prevented, by the round and broad ligaments.

There is a very common form of descent of the uterus which according to the classification of our text books can hardly be called "prolapse." A term of my own choosing is "settling" of the uterus. The uterus is lying heavily in its bed. The cervix and fundus are directed normally, the cervico-corporeal angle is unchanged. The relation of the uterus to the opening in the levator ani is undisturbed, its mobility under bimanual examination is either unaffected or slightly increased, but its **normal respiratory excursion is limited and sluggish**. It is congested, heavy and enlarged and lies lower in the pelvis than is normal. This is usually a part of a general visceroptosis.

CAUSES: (1.) Childbirth. The liability to prolapse is proportionate to the number of children a woman bears. Each parturition adds its own liabilities. Only about one per cent of cases of prolapse occur in women who have never borne children. This

with its sequelae is one of the most important causes of prolapse. It is often followed by perineal lacerations and when these involve the levator ani, prolapse is almost inevitable, sooner or later. Even when the laceration is not so extensive it may allow the formation of a cystocele which in turn draws the cervix forward and downward. Should the woman escape a perineal laceration, subinvolution with its consequences may ensue. The uterus may not only be left larger and heavier than normal but its ligaments, the pelvic floor, the abdominal walls, may at the same time be left relaxed, and weakened, and less capable of sustaining the heavier uterus. Subinvolution or relaxation of the pelvic floor is next in importance to laceration. If the levator ani does not regain its tone after each parturition the vaginal opening through this muscle having been stretched enormously in labor remains large, relaxed and patulous. The cervix easily slips forward into it under the influence of increased intra-abdominal pressure and a prolapse occurs. Under these conditions the subinvolution has involved the uterus also and its increased weight facilitates the prolapse. Lacerations of the cervix with consequent inflammation, enlargement and increase of weight are other sequelae of childbirth that tend to cause prolapse.

(2.) *Deranged Spinal Innervation.* This interferes with the nerve supply of the ligaments and pelvic floor and causes their relaxation. By vasomotor disturbance congestion and increased weight

of the uterus is caused. It thus has a two-fold influence in causing prolapse, and especially "settling" of the uterus. It operates also as a predisposing cause of subinvolution of the pelvic organs and structures.

(3.) Increased Weight of the Uterus. This may occur from tumors, chronic metritis or endometritis, chronic congestion or subinvolution.

(4). Anterior Traction on the Cervix. Adhesions may draw the cervix forward into the vaginal opening in the levator ani and abdominal pressure then forces the uterus downward. A cystocele or a rectocele may form after slight lacerations of the perineum and act in the same way.

(5). Increased Intra-abdominal Pressure. This is a factor which operates in conjunction with nearly all the other causes. Of itself it may occasionally cause an acute prolapse. It may be from violent and continued muscular efforts, straining at stools, coughing, sneezing, falls, abdominal tumors, or ascites. A sudden and violent increase of intra-abdominal pressure may cause acute prolapse in virgins.

(6). General Debility or Senile Changes. In cases of constitutional weakness, whether due to senility or other causes, the pelvic tissues participate. After the menopause there is atrophy of the supporting structures of the uterus, an absorption of

fat usually, both of which tend to prolapse.

(7.) Posture. This is particularly a cause of "settling" of the uterus which so often occurs as a part of a general abdominal and pelvic ptosis. "Slumping," as has before been suggested eliminates the anterior lumbar curve and changes the plane of the pelvic inlet so that the intra-abdominal pressure and organs have more direct access to the pelvis.

PATHOLOGY. The uterine ligaments are stretched and the vaginal walls are congested, thickened and inverted, in proportion to the descent. As a consequence of their congestion, thickening and increase in weight, they make additional traction upon the uterus and draw it further downward. In cases of complete prolapse the inversion may be so great that the vaginal walls are turned inside out, the uterus being inside the inverted vagina. Ulceration of the mucous membrane sometimes occurs. All of it that is exposed becomes dry, lustreless, thickened and resembles epidermis rather than mucous membrane.

The cervix, especially if it extends beyond the vulva, is eroded and ulcerated, if not from a primary laceration, then from friction against the clothing. The external os may appear normal or it may be gaping with its mucous membrane exposed.

Cystocele is a constant accompaniment, but rectocele is less so, as the anterior wall of the rectum

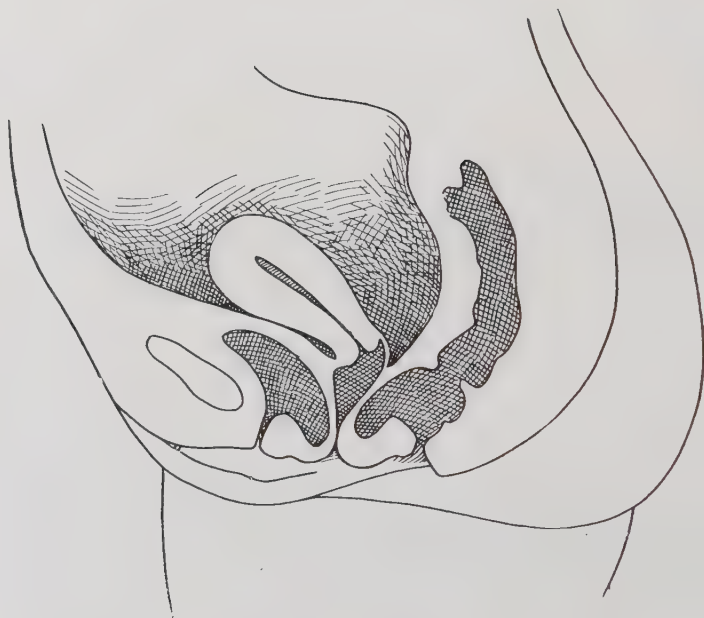


Fig. 39. Cystocele and Rectocele. Sectional View.

follows the uterus down much less frequently than does the bladder. (Fig. 39.) The course of the urethra is distorted, passing backward and downward instead of upwards. Its orifice in complete prolapse may be found in the transverse folds on the upper part of the tumor.

In long standing cases the accumulation of urine in the bladder may lead to a chronic cystitis with hypertrophy of the vesical mucous membrane. This inflammation may extend to the ureters and even to the pelves of the kidneys. Prolapsus may cause an obstruction to the ureters, and acting in this way is the only uterine displacement which has been known to cause death.

The recto-uterine excavation usually extends down behind the prolapsed uterus to the lowest part of the tumor. It only occasionally contains some of the small intestines. The vesico-uterine excavation does not as a rule extend so far down.

Congestion of all the pelvic viscera results from the distortion of and obstruction to the blood vessels.

SYMPTOMS. Marked cases of prolapse may exist without producing symptoms. In most cases there are pronounced bearing-down sensations, a feeling of weight and heaviness in the pelvis as if all the organs were going to drop out. These symptoms often occur when the prolapse is very slight, the so-

called cases of "settling." There is difficulty in walking, discomfort on standing, pain in the back and loins, all which are increased by any muscular exertion sufficient to cause fatigue. The bladder empties incompletely or with difficulty, it sometimes being necessary for the patient to replace the cystocele through the vagina before it can be emptied at all. The retained urine decomposes and irritates the bladder and causes frequent and painful urination. Symptoms of a severe cystitis sometimes result.

The descent of the anterior rectal wall, or a rectocele, is not so common as the formation of a cystocele. When it does occur the feces may collect in the pouch thus formed and cause difficulty or pain on defecation, constipation and sometimes a slight proctitis.

Leucorrhoea is usually present but menstrual disorders are not marked, though menorrhagia sometimes results from the congestion incident to the displacement.

Conception may occasionally occur and take its normal course, the uterus prolapsing until its size retains it in position. Return of the prolapse usually occurs after confinement, but with care and attention during the period of involution a cure may be effected.

In cases of acute prolapse there is a sensation of

something having given away, violent pain, shock, nausea, or vomiting, retention of urine, collapse, feeble pulse and clammy perspiration.

DIAGNOSIS. In the cases of "settling" of the uterus a diagnosis may have to be made chiefly from the symptoms. Often very little derangement in position will be found when the patient is examined in the dorsal posture. As a rule the uterus is found enlarged, boggy and unusually sensitive to pressure. If the patient is examined in the erect posture the descent of the organ can be determined. In the ordinary cases on vaginal examination the cervix will be found low down and pointing downward and sometimes forward as well. It may be within the vagina or protruding through the vulva. Bimanual examination will disclose the uterus as a whole lower than normal in the pelvis and retroverted as well. If completely prolapsed the uterus may be inspected and palpated as it protrudes from the vagina. It presents a smooth, dry surface with the vaginal rugae showing at the base of the tumor and the external os at its apex. On palpation a soft, elastic doughy mass of the characteristic shape of the uterus is felt within the inverted vaginal walls. In some cases of incomplete prolapse it is often necessary to examine the patient in the upright position, as in this position the maximum of prolapse will be evident. In the dorsal or Sim's position some degree of replacement may naturally occur.

A condition giving some of the physical signs of prolapse is caused by hypertrophy and elongation of the cervix. To differentiate them it is necessary to locate the body of the uterus by bimanual palpation. If the body is found high in the pelvis in its normal position the case is one of hypertrophy of the cervix. Cervical hypertrophy and prolapse may occur together, but in cervical hypertrophy the unusual length of the cervix will be discovered. The introduction of a sound disclosing the increased depth of the uterus will aid in this. It is impossible to replace the apparently displaced organ in a cervical hypertrophy as can usually be done in prolapse.

A polypus or an inverted uterus may occasion some difficulty in diagnosis but in neither of these conditions is there an opening in the lower end of the tumor, while their small ends are upward, the reverse of a prolapsed uterus.

PROGNOSIS. In those cases not due to severe lacerations of the perineum, tumors, ascites or absolute loss of tone, early relief and a possible ultimate cure are to be expected. A great deal has been done for some very unpromising cases.

TREATMENT. Prophylaxis is an important part of the treatment of prolapsus. Childbirth and its incidents cause most cases. Care at this time to prevent lacerations, or to see that they are promptly repaired



Fig. 40. Knee-chest Posture.

when they do occur, is imperative. The period of involution should be closely observed to see that the uterus and all the tissues involved in pregnancy and parturition return to their normal condition. Severe physical exertion of any nature should be avoided for some time after delivery. All other contributing causes should be located and removed.

The immediate indication is for replacement. All the complicating conditions, ulceration, congestion or inflammation, yield more quickly and readily after replacement is effected. Replacement is ordinarily easiest performed in the knee-chest posture. (Fig. 40.) The bladder and intestines should be emptied. The patient may occupy the knee-chest position fifteen or twenty minutes before replacement is attempted. This allows the intestines to gravitate away from the pelvis and in some degree relieves congestion also. At times it may be advisable to put the patient to bed with her hips elevated for several hours, or longer, to free the pelvis of intestines and make replacement easier.

If the prolapse is not complete, pressure may be applied to the cervix and the uterus firmly but gently lifted in the direction of the inferior strait of the pelvis. The pressure should be steady, but slow and deliberate, taking fifteen or twenty minutes, if necessary, in reducing the displacement. Less time may be necessary in minor degrees of displacement, but the procedure is the same. After replacement a

sweeping movement should be made with two fingers in the vagina, beginning at the median line or the anterior wall of the vagina and passing out on each side. This reduces the congestion in the vaginal walls as well as in the tissues between the layers of the broad ligaments.

In cases of complete prolapse, if the tumor is large and the vaginal walls thickened it must be replaced by beginning near its base and replacing that part of the inverted vagina that is nearest the vulva. As the vaginal walls are replaced, gentle and increasing pressure is made upon the uterus to compress it, and at the same time force it upward and backward in the direction of the sacral curve.

The uterus passes back into the pelvis in a position of retro-displacement. Replacement is not completed until by bimanual technic is it brought into its normal anteposition.

Occasionally in cases of long standing the formation of adhesions between the fundus and some adjacent organ or tissue, or great hypertrophy of the vaginal walls, may prevent replacement. Means for retaining the uterus in position are discussed in Chapter VIII.

In the cases of "settling" relief of the congestion and reduction in the size of the uterus are necessary. Direct treatment to the organ itself as is

described under the treatment of Endometritis will accomplish this result.

The treatment recommended by Dr. Still in "The Philosophy and Mechanical Principles of Osteopathy" is particularly applicable to these cases. He says, "We recommend placing the patient in the knee-and-chest position, with the chest for ease and comfort resting on a pillow, allowing the chin to hang over the head end to the table. Pass the right hand across the body in the lumbar region and under the abdomen to the right iliac fossa. Then place the right hand flat upon the bowels from the pelvis, with the left hand pressing gently on that part of the abdomen. Be slow and gentle in all movements, for fear of bruising the caecum, ileo-caecal valve and the mesentery of that region. Make a gentle, strong pressure upward toward the ribs with the ascending colon. Follow across the abdomen from right to left, in order to straighten up the transverse colon to its normal position. Then lay the hand back toward the symphysis and gently press the sigmoid division toward the stomach, with a view to pulling that division of the colon and small intestines out of the pelvis. Then, with both hands gently and firmly pressed upon the anterior region of the abdomen come up toward the stomach with this gliding motion, with a view of straightening the bowels, from the caecum to the transverse, the descending and sigmoid division to the rectum. Also adjust the mesen-

tery in all its attachments both to the large and small intestines, and give freedom to the ileo-caecal valve, that the softening fluids may pass without delay into and through the colon. By so doing, we set at liberty and give freedom to the blood and nerve supply of the uterus, ovaries and Fallopian tubes. We also take all pressure off the nerves which govern the uterus and venous motion of blood from the pelvis and through the whole uterine system of blood, nerves and lymphatics."

Exercises to regain the tone of the abdominal, thoracic and pelvic muscles are necessary. The knee-chest posture for from three to five minutes should precede the exercises and should be assumed particularly on retiring at night and before a mid-day rest of an hour or more in bed.

For a full discussion of the necessary exercises the reader is referred to "The Therapeutics of Activity" by Dr. Andrew A. Gour. I often prescribe four simple exercises which I call the "fundamental four." These can be quickly demonstrated to the patient, are easily remembered, are effective if persistently followed, and are more likely to be carried out than a more elaborate system.

1. Assume the knee-chest position for three to five minutes. Then lie on the back with knees flexed, hands back of head. Inhale deeply as knees are

pressed forcibly to the right as far as possible, rotating pelvis in that direction, but keeping shoulders flat. Exhale as the knees are brought back to the median line. Inhale as they are carried to the left as far as possible and exhale again as they are returned to the median line. Repeat ten or twelve times to begin with. (Fig. 41.)

2. Lie on back, hands by sides. Inhale and reach as far upward and to the right with the right hand as possible and at the same time reach as far downward and to the left with the right foot as possible. Exhale as return to beginning position. Inhale and repeat with left hand and foot. Repeat ten to twelve times. (Fig. 42.)

3. Lie on back, hands back of head. Keep knees straight. Inhale as both feet are raised to a right angle with body or higher if possible. Exhale as they are lowered to beginning of this position. If this exercise is found too heavy begin by raising only one foot. Repeat five or six times to begin with. (Fig. 43.)

4. Lie face downward, hands on small of back. Inhale and raise head and shoulders as high as possible. Exhale as return to beginning of this position. Repeat six or eight times to begin with. (Fig. 44.)

These are essentially "mat" exercises, and restore tone and activity to the muscles of the thorax

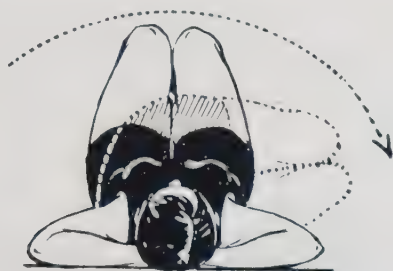


Fig. 41.



Fig. 42.

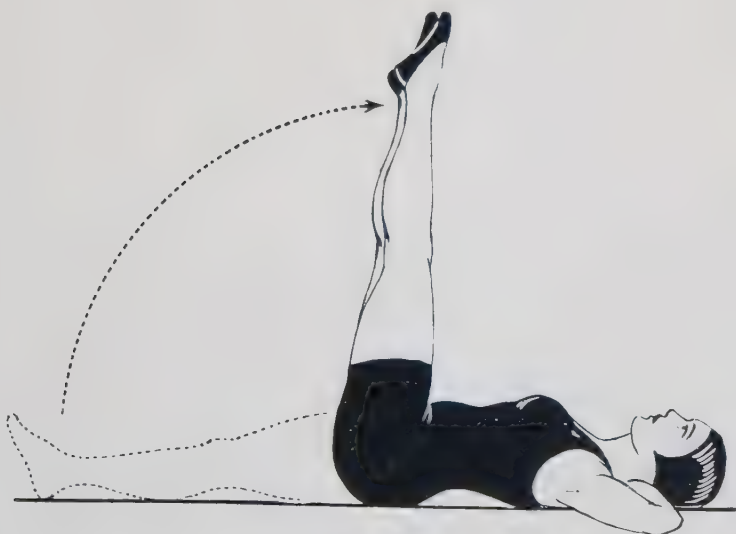


Fig. 43.



Fig. 44.

and abdomen, so fundamental to the maintenance of position and circulation of the pelvic and abdominal viscera.

Particular attention must be given to spinal innervation.

CHAPTER VII.

Endometritis-Salpingitis-Ovaritis.

Chronic endometritis usually follows the acute form. The acute symptoms subside, but leave in their wake a very definite pathology and distressing symptoms of the chronic disorder. There are many cases in which a history of an acute attack can not be obtained. If such was ever present it was insignificant and unnoticed. The causes of such cases apparently developing without acute incidence are:

(1). Deranged Spinal Innervation. By disturbing vaso-motor nerve supply a congestion of the uterus is produced. This of itself will in time lead to a chronic inflammation or more properly a proliferation of connective tissue.

(2). Constitutional Debility from disease, overwork, poor food, repeated childbearing or prolonged lactation, if not actively causative are important predispositions.

(3). Impeded Respiration. Pelvic circulation is to a large extent dependent upon full and free respiratory activity. Whatever interferes with this tends to cause pelvic congestion. It may be insufficient exercise, improper corseting, bands about the waist, postural defects, diseases of heart and lungs, etc.

(4). Pelvic Inflammation or Tumor. These when they do not directly involve the uterus do tend to cause chronic congestion of this organ.

(5). Injuries to Cervix or Uterus. Chronic infective processes may follow laceration of the cervix or lesser injuries in premature or normal births, difficult or complicated labors, instrumental examination, attempts at abortion or the improper use of pessaries.

(6). Disregard of the Laws of Sexual Hygiene. Excessive venery, masturbation or the use of various methods for the prevention of conception.

(7). Subinvolution. This is a rather frequent cause and of itself arises from improper care of the patient during the puerperium.

PATHOLOGY. Chronic endometritis, if of long standing, has extended beyond the endometrium and has involved the muscular structure of the uterus and has become a chronic metritis as well. As such it may involve the entire uterus or the pathology may preponderate in either the cervix or the body. If localized in either of these it is more frequently in the cervix, as it is more subject to trauma during childbirth, and is subject to irritation whenever there is a prolapsed condition of the uterus. Next in frequency the entire uterus is affected, the body alone, least frequently.

The mucous membrane is congested, dark red in color, soft, and owing to its swollen condition it may protrude from the external os and form a red and inflamed area around it. This was formerly thought to be ulceration of the cervix, but is now called an "erosion" or a "granular os" (real ulceration of the cervix is due to an irritation, as from a pessary, friction of the clothing when prolapsed, an unusually irritating discharge, chancroid, chancre, tuberculosis or malignancy). The glands of the cervix are hypertrophied and in a condition of hypersecretion. The ducts of the glands often become occluded and small cysts filled with glairy, viscid, cervical secretions are formed. These cysts may vary in size from a pinhead to a pea and often project beyond the external os.

When the body is affected the mucous membrane is thickened, soft and contains many enlarged blood vessels. It may also be raised in ridges or is rough and nodular, from the cystic and hypertrophied glands, or there may be patches of granulations studded over it. All this causes a leucorrhoeal discharge as well as a tendency to profuse or irregular bleeding. As a later change there may be infiltration of cells into the mucous membrane. The organization of these cells into connective tissue and the subsequent contraction of this tissue may largely destroy the gland tissue of the endometrium. As a result of the extension of the congestion to the

uterine walls there is cellular infiltration within them with the formation of connective tissue. This occurs between the muscle bundles and causes the uterine walls to thicken and the uterus to become enlarged. This condition may be confined to the cervix or may affect the entire organ. As a secondary change the proliferated connective tissue may contract and a condition of sclerosis or atrophy of the uterus occur.

SYMPTOMS. These are very insidious in their onset. The disease develops slowly and is usually well established before a physician is consulted. They are local, due to the direct effect of the inflammation, and constitutional, or reflex, due to irritation of the abundant supply of pelvic sympathetic nerves.

Leucorrhoea is often the first and most troublesome symptom and the one from which the patient seeks relief. This may have lasted for months or years and be the only symptom. If this is from a cervical inflammation the fluid resembles the raw white of an egg; is thick, glairy and tenacious. If it is from an inflammation of the body it is thin, serous, milky in appearance or in the most troublesome cases, purulent. The discharge is sometimes brownish or reddish from a mixture with blood. It is sometimes very irritating to the external parts with which it comes in contact and may cause almost intolerable itching and burning.

Menstrual disorders are a common and important symptom. No particular disorder is constant. Depending upon the pathology present the flow may be scanty, profuse, irregular, suppressed, or as is often the case, prolonged and painful.

Pain or discomfort is common. There may be a sense of heaviness, weight, bearing down or cramp-like pains in the uterus. Pain in the back, loins, legs and hypogastrium is frequent. The patient is easily tired and her endurance for physical exertion of any kind is lessened. The irritation may extend to the bladder and cause frequent urination and sometimes severe dysuria. These symptoms are worse just before and during the menstrual period.

Sterility is a frequent accompaniment. Not only does the inflamed mucous membrane offer a poor nidus for the lodgement of the ovum, but the leucorrhoea has a tendency to destroy or dislodge the spermatozoa.

The reflex symptoms are some of the most distressing produced by the disease. This is not surprising when the extensive sympathetic connection is remembered. The appetite is lost or capricious and digestive disturbances, even to nausea and vomiting, may be present. Constipation, headache, disorders of vision, pains in the eyes, irritability of temper, restlessness, sleeplessness, melan-

cholia, hysterical manifestation, mental and physical fatigue, and breathlessness on exertion may all be found. All of these symptoms are not found in every case, but a number of them will be present. In some cases the mammary glands may become tender, the areolae may become more pigmented and extensive. These symptoms in connection with the increase in the size of the uterus and the nausea and vomiting may lead to a mistaken diagnosis of pregnancy.

DIAGNOSIS. On bimanual examination the cervix is found to be enlarged and tender, the os somewhat patulous, as a rule, and the soft, protruding mucous membrane, studded with the enlarged and cystic glands can be felt. The body, if involved, is enlarged, unless a sclerotic change has occurred, and is often very tender, when pressed between the fingers of the two hands. If a speculum is introduced the os will be found filled with a thick tenacious plug of mucus or pouring from it will be the serous or purulent discharge.

Differentiation must be made from fibroid tumors, tuberculosis of the uterus and cancer. The first is usually easy as the tumor will be discovered on careful bimanual examination. Chronic endometritis may exist with a fibroid. Cancer is rare before thirty-five. Its tissue is friable, and bleeds easily. It is accompanied by an abundant thin, watery and pe-

cularly offensive discharge. The early diagnosis of cancer is a matter of such great importance that if there is any question, a piece of the tissue should be subjected to a microscopical examination by a competent microscopist.

Tuberculosis of the uterus is usually associated with a similar condition of the tubes and pelvic peritoneum. Tubercular bacilli may be found in the discharge or scrapings removed by a curette.

PROGNOSIS. Relief can almost invariably be given, and a cure effected in time, though the symptoms often return. If there is an extensive laceration of the cervix an operation for its repair is necessary.

TREATMENT. First of all is removal of causes. After this is done intra-pelvic technic to restore pelvic circulation, lymphatic drainage and tone to the affected structures is necessary. All displacements should be corrected and all adhesions relaxed. Thorough mobility of the uterus should be secured. It should be bimanually moved in all directions, gently but thoroughly. The uterus itself, both cervix and body should be manipulated between the external and intra-vaginal hands by alternate pressure and relaxation gently applied by circular motions executed by the external hand while the internal fingers steady the organ and apply counter pressure. A sweeping movement from the sides of the uterus out-

ward toward the walls of the pelvis executed by the fingers of both hands simultaneously, the broad ligaments with their contained blood vessels and lymphatics being between them, aids greatly in relieving the congestion and inflammation.

The effects of these treatments should be carefully noted. If no irritation is excited the treatments may be given three times a week. If irritation is excited it should be allayed by spinal inhibition, hot applications to the hypogastrium and hot douches, and rest in the recumbent posture, before the treatment is repeated.

The cystic glands in some cases will require opening. This should be done through a speculum with a bistoury or some other sharp instrument. The operation should be done under antiseptic precautions and followed by the application of tincture of iodine or a copious douche of hot water.

Salpingitis.

Chronic salpingitis is nearly always the result of the acute form.

PATHOLOGY. The tubal epithelium is diseased the walls are infiltrated and thickened by inflammatory exudate which may have become organized into connective tissue. The inflammation may have closed one or both ends of the



Fig. 45. Left-sided Pyosalpinx.

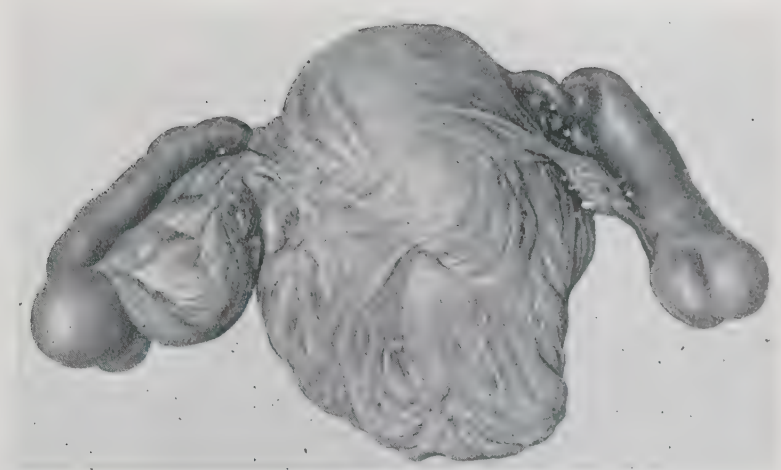


Fig. 46. Double pyohydrosalpinx, Chronic Adhesive Perimetritis and Oophoritis. Both tubes are almost filled with pus, the fimbriated ends, walled off both from the isthmus and from the peritoneal cavity, are transformed into cysts. (Schaeffer, Atlas and Epitome of Gynecology.)

tubes, the fimbriated end, usually first. Any serous exudate which had accumulated within the lumen of the tube may have become absorbed, or similar pus collections become sterile, unless due to streptococcus infection. Should these changes not have occurred a hydro-salpinx, pyo-salpinx or ovarian abscess may remain. Again the conditions within the tube may have subsided leaving as sequelae peritoneal adhesions which may bind tubes and ovaries into a distorted and displaced or immobile mass. (Figs. 45, 46.)

SYMPTOMS. These are often vague and indefinite. There is usually tenderness or pain in one or both of the iliac fossae, or perhaps generally over the lower abdomen, with a sense of weight and heaviness in the pelvis. Backache is not uncommon. These symptoms are all aggravated by exertion of any kind, or by standing, and usually by the onset of menstruation. Leucorrhoea is often present. Sometimes there may be an occasional gush of muco-purulent fluid, perhaps due to the discharge of an accumulation of fluid in the tube. Menstrual disturbances are common. Sterility is to be expected. There is usually some deterioration of the general health with loss of flesh and strength and often neurotic symptoms. Acute exacerbations of the symptoms may occur from time to time from various causes.

DIAGNOSIS. This is determined finally by a bimanual examination. In mild cases the tubes may be

found in a thickened or nodular condition as slightly tender cards passing out from one or both cornua of the uterus. Again a sausage shaped sensitive mass will be detected, more or less mobile, and easily recognized as an enlarged tube. If the tube is filled with fluid a mass may be found beside the uterus by which it may be adherent to the pelvic wall. The mass may be pear shaped, the small end toward the uterus, the large end formed by the dilated tube adhering to the ovary. Often the tube has gravitated to the recto-uterine excavation where it may be fixed by adhesions. When it contains fluid, fluctuation can usually be elicited.

The ovary can sometimes be felt free of adhesions, tenderness or swelling, but it is usually more or less affected, and in tender, swollen, involved in adhesions and matted to the tubes.

A recto-abdominal examination is of aid in making a diagnosis.

TREATMENT. This has been discussed in the Chapter on Adhesions.

Chronic Ovaritis.

This disease occurs more frequently associated with chronic inflammation of the pelvic peritoneum and connective tissues than as an affection of the ovaries alone. Both organs may be involved, but

when the disease is unilateral the left ovary is more frequently affected. This is because of its proneness to congestion, the left ovarian vein not only being without valves, but it opens into the renal vein at right angles, and because of its location it is subject to pressure from fecal accumulation in the lower bowel.

The disease is most common in married women and during the age of sexual activity.

CAUSES. (1) Deranged spinal innervation.

(2). Pelvic inflammation, especially gonorrhoeal or puerperal. Endometritis, salpingitis, cellulitis or peritonitis may cause ovaritis by extension, the two former by extension through the tubes, the latter by continuity of tissue.

(3). Uterine Displacements by causing congestion. Retroversion especially as it not only greatly distorts the course of the blood vessels, but also displaces the ovaries.

(4). Prolapse of the ovary by producing congestion and irritation.

(5). Repeated attacks of acute ovaritis.

(6). Continued congestion. This may be from intemperate coitus, masturbation, unsatisfied sexual

desire or severe exertion, heavy lifting, alcoholism, heart, lung or kidney disease.

PATHOLOGY. The disease may occur primarily as a disease of the ovary or a disease of the peritoneal covering of the ovary, or what is in fact, a peri-ovaritis. In the early stages of the disease the ovaries are congested and may be enlarged to two or three times their natural size. This enlargement may be permanent or the contraction of new inflammatory tissue within the organs themselves, together with the contraction of adhesions surrounding them, may cause them to atrophy and become smaller than normal. When enlarged the ovary is often prolapsed into the recto-uterine excavation or by the side of the rectum. It may be fixed here or in its normal position by adhesions.

Cystic degeneration is not uncommon. (Fig. 10.) The cysts may be small and multiple, or one large cyst may form and by pressure, cause atrophy of the ovarian tissue, a true ovarian cyst being formed. The cysts originate from the corpora lutea or from Graffian follicles, which are prevented from rupture because they are deeply seated or covered with inflammatory exudate, or because of insufficient menstrual congestion to cause their normal rupture. Waxy degeneration of the ovary sometimes occurs.

SYMPTOMS. These are frequently vague and may be masked by the accompanying conditions.

Pain is rather constant. It is usually located in the groin, most frequently on the left, and radiates to the sacrum, the rectum, the bladder or down the thigh to the knee. It is increased by jolting or jarring, often by defecation or micturition and by coition, if the ovary is prolapsed. Standing or walking for even a short while is painful and difficult. The pain is always more severe preceding menstruation, sometimes several days before, and is relieved if the flow is profuse, but continues when the flow is scanty.

Sympathetic pains are often felt in the breasts.

Leucorrhoea is sometimes present as a result of the general pelvic congestion.

Menstruation may be irregular or profuse, in the early stages, but later if the ovarian tissue is destroyed amenorrhoea will result.

Reflex nervous symptoms are sometimes pronounced. Irritability, mental depression, hysteria, or even epilepsy may result.

DIAGNOSIS. This is made from the history of some previous pelvic inflammation or the operation of some of the less frequent causes, together with the tenderness and spherical enlargement of the ovary, (which increases before menstruation), the premenstrual pain, and the presence of adhesions about the ovary.

TREATMENT. In addition to the treatment as outlined under Adhesions, to free the ovary, it should be manipulated directly. This is done by making circular movements limited, if not to the painful area, at least to the ovary itself. These motions can be made by either the external or internal hand. The hand not employed in these manipulations is used to make counter pressure and to immobilize the ovary while the motions are made. When prolapsed the ovary can sometimes be more easily reached by recto-abdominal manipulation.

Efforts should be made with each treatment to replace the ovary.

CHAPTER VIII.

Tampons and Pessaries

Tampons are useful, chiefly for two purposes: as media for the application of various medicaments to the cervix and vagina, and to support the uterus and the pelvic blood vessels.

Tampons are made either of cotton or wool. The cotton may be in the form of gauze or absorbent cotton though sometimes ordinary cotton may be used. Cotton is less suited for supporting purposes than is wool. When it becomes saturated with the secretions it collapses. This is less true of gauze and ordinary cotton than it is of absorbent cotton. Wool absorbs secretions less readily, possesses a certain degree of elasticity and does not collapse to the extent that cotton does. It sometimes proves irritating to the vaginal mucous membrane and it may be necessary to cover it with cotton.

Tampons are usually made by taking a piece of the desired material, folding it to the proper size and looping a string about its middle, at which place the tampon is folded. If it is desired that the patient remove the tampon herself, the string should be left long enough to reach outside the vulva. When tampons are made of gauze, one or more strips may be used the length and width of each strip suited to the purpose intended. These strips of gauze are

packed into the vagina with a dressing forceps with the aid of a bi-valve or a Sim's speculum.

The medicaments used are usually of an antiseptic, a counter-irritant, a hygroscopic or an astringent nature. Almost numberless substances have been used for these purposes though boracic acid, tannic acid, iodine, alum and iron in some form have been most popular. Glycerine, in some form or combination, has been used for its hygroscopic action. It is believed that glycerine compounds deplete the tissues by abstracting moisture from them, and in this way, relieve congestion and inflammation.

If a solution is being applied the tampon is saturated with it, the excess of fluid pressed out, and with the aid of a speculum and forceps, the tampon is introduced and placed at the desired spot. If a powder is used a "nest" is made for it in the tampon and it is then introduced. One or a number of tampons may be used.

It must be remembered that many chemicals may be absorbed when introduced into the vagina and systemic symptoms produced. Fatal poisoning has occurred in this way.

Tampons that are used to support the tissues can not be introduced in a haphazard manner but must be carefully placed with a definite idea in mind as to what is to be accomplished. They are to form a

support upon which the uterus rests and by pressure to also support the walls of the distended blood vessels. They sometimes give great relief. Such tampons may be used in a dry state or with some of the compounds before mentioned upon them. They are best inserted in the Sim's, (Fig. 35), or the knee-chest posture.

Tampons, as a rule, should not remain in place longer than twenty-four hours. Their removal should be followed by a copious douche of hot water.

Tampons are generally more useful in acute than in chronic conditions.

Pessaries.

A pessary is to the displaced uterus merely a crutch, an artificial support to be discarded as soon as the natural ones can function. Should the various agencies supporting the uterus fail to resume their functions, then the pessary must be retained until something better can be provided. Pessaries do not correct displacements and the use of a pessary is rarely advisable until replacement has been accomplished.

In recent years the trend toward surgery has been so great, surgeons have become so skillful and daring that many cases formerly treated by the use of pessaries are now referred to the surgeon, consequently the use of pessaries is less common than

it once was. The fact remains however that many patients can be relieved or cured of displacements by proper intra-pelvic technic supplemented, when necessary, by the use of pessaries. Besides there are many cases in which the hazard of surgery is either out of proportion to its possible benefits or is contraindicated altogether.

Pessaries remain most useful devices in the treatment of many common displacements and to discard their use is to limit one's ability to properly care for many troublesome conditions. A study of their application will amply repay anyone.

Pessaries are usually made of hard or soft rubber, occasionally of metal, glass or some other material. Besides the purpose of supporting the uterus and the vaginal walls they are sometimes used to straighten or dilate the cervical canal. They are arbitrarily divided according to form into (1) ring pessaries, (2) modified ring pessaries, (3) ball pessaries, (4) cup pessaries, (5) stem pessaries, (6) belt supported pessaries. (Figs. 47, 67.)

The ring pessaries need no special description. They may be made of hard rubber, or of a spiral spring covered with rubber, or a copper ring covered with rubber or of soft rubber and inflated with air. The inflated ring is perhaps most frequently used.

The modified ring pessaries are rings so modi-

fied as to be somewhat quadrilateral in form, having two lateral and an anterior and a posterior bar with the angles rounded. They have a slight S curve from behind forward, the posterior end looking upward, the anterior end downward. This curve is to conform to the curve of the vagina and is to prevent the pessary slipping out too readily. Of this form the most frequently used are the Hodge, (Fig 47), the Smith, (Fig. 48), the Thomas, (Fig. 49), and the Gehrung pessary, (Fig. 51).

The ball and the cup pessaries are not frequently used. (Figs. 57, 58.)

Stem pessaries are so called because they are provided with a stem which projects into, and sometimes through, the cervical canal. (Figs. 59-66.)

Belt supported pessaries are fastened to a belt which fits around the waist. From it rubber bands pass beneath the thighs and they in turn support hard rubber stems of various designs. These rubber stems pass into the vagina and are fitted at their upper ends with a cup, or a ring, to receive the cervix. (Fig. 67.)

Pessaries support the tissues either directly or indirectly. In their turn they are supported by the pubic arch, the muscles and fasciae about the vaginal entrance, the vaginal walls and the pelvic floor. The pelvic floor when normal, through the medium of the



Fig. 47. Hodge Pessary.



Fig. 48. Smith Pessary.



Fig. 49. Thomas Pessary.



Fig. 50. Thomas-Hodge Pessary.

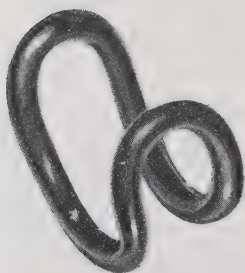


Fig. 51. Gehrung Pessary.



Fig. 52. Byford-Smith.



Fig. 53. Inflated Rubber Ring Pessary.



Fig. 54. Rubber Covered Spring Wire Pessary.

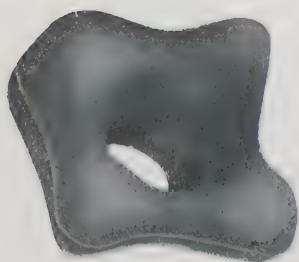


Fig. 55. "Anatomical" Pessary.



Fig. 56. Menge or Vienna Pessary.



Fig. 57. Glass Ball Pessary.



Fig. 58. Aluminum Cup Pessary.

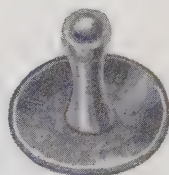


Fig. 59. Aluminum Stem Pessary.



Fig. 60. Hard Rubber Stem Pessary.



Fig. 61. Glass Stem Pessary.

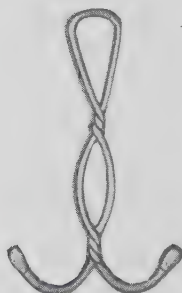


Fig. 62. Ferguson's Draining Pessary.



Fig. 63. Chamber's Stem Pessary.



Fig. 64. Soft Rubber Stem Pessary.



Fig. 65. Gold Stem Pessary. Closed with gelatine capsule for introduction and opened after introduction.



Introducer for Soft Rubber Stem Pessary.



Fig. 66. Wire Stem Pessary.

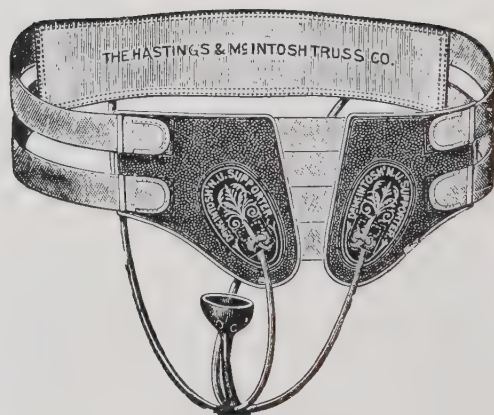


Fig 67. Belt Pessary.

intervening tissues, keeps the pessary held snugly against the pubic arch. Indirect support is by the so-called "lever action" in which the cervix is held backward and upward in the hollow of the sacrum (Fig. 68.) As before mentioned the uterus as a whole has a certain amount of normal rigidity because of which any elevation of the cervix tends to depress the fundus and vice versa. Thus, if the cervix be held upward and backward, the fundus must be downward and forward, unless the normal tissue rigidity has been overcome, as in cases of flexion. To maintain the cervix upward and backward is the purpose of the lever pessary. The posterior end of the pessary fits snugly into the posterior vaginal fornix, tensing the tissues here at their attachment to the cervix. The anterior end of the pessary gets its support primarily from the pubic arch and the pelvic floor. Unless the pelvic floor has been destroyed the vagina is more capacious within than at its opening. The narrow vaginal entrance aids in preventing the pessary from slipping out after it has been introduced.

Some direct support is exercised by every pessary but particularly is this so of the ring, the ball, and the belt pessaries in prolapsus.

It should always be remembered that pessaries must be "fitted" in the strictest meaning of that term. It is an easy matter to place a pessary in the vagina but unless it is properly fitted to the case it

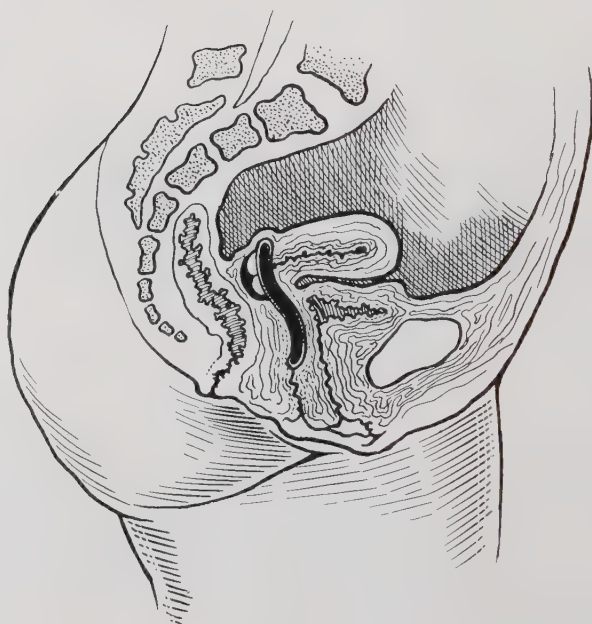


Fig. 68. Lever Action Pessary.

is either a useless contrivance, or on the other hand, may be the cause of irreparable harm. A pessary that is too small affords no support and is useless. One that is too large may by pressure cause inflammation, ulceration or perforation of the vaginal walls. A pessary should be so fitted and adjusted as to support the uterus in its normal position, to preserve its normal mobility and to restore to it, and not hinder, its normal circulation. To add to the difficulty of properly fitting a pessary is the fact that the contents of no two pelves are exactly alike. Vaginae differ in dimensions, in depth, in breadth, in capaciousness, in tonicity or relaxation of their walls. Uteri differ in size, in weight, in relation to the vagina and in their degree of displacement. The failure to properly appreciate these facts accounts for many of the unsatisfactory results in the use of pessaries. The correct fitting of a pessary is an operation that requires mechanical skill and a thorough knowledge of the contents of the pelvis and their possible variations. Especially is this true when a hard rubber "lever action" pessary is being used. It is nearly always necessary to reshape these instruments to fit the particular case.

Reshaping may be done by placing the pessary in hot water or by heating it over the flame of a spirit, or gas, lamp until it becomes pliable. It can now be reshaped by holding it with a towel and either lengthening, shortening, widening, narrowing or

changing its curves as the indications may require. When the desired shape is secured the pessary is plunged into cold water which causes the new form to become permanent.

Pessaries may be used in practically all displacements, but are particularly useful in retrodisplacements and in prolapsus, not only of the uterus, but of the vaginal walls as well. In retroversion, during pregnancy and the puerperium, they are of distinct value. A retroverted uterus is prone to abortion and even though this does not occur, nausea and vomiting are more common when pregnancy occurs in such a uterus. In prolapse, pessaries are sometimes invaluable. In many cases it is a matter of choice between the use of a pessary and an operation. Operations are at times positively contra-indicated. I recall the case of a hemophiliac who refused to have a perineal laceration repaired but was restored to a condition of usefulness and comfort by the use of an inflated ring pessary. Also in cases of pregnancy with prolapsus they are of great usefulness.

Stem pessaries are sometimes successfully used in anteflexion, to straighten the cervical canal, and to relieve the accompanying dysmenorrhoea and sterility.

Elderly women in whom operations are extremely hazardous often secure great relief from the use of

pessaries. In these, especial care must be taken to keep the instrument clean and to prevent incrustations upon it, because of the proneness of the thin vaginal walls of the aged to inflammation.

In complete prolapsus the belt pessary with supporting cords may be necessary. The vaginal walls themselves are thick and prolapsed; the pelvic outlet is relaxed, or destroyed, by a laceration and there is no support for any other form of pessary.

A pessary should be rendered surgically clean by scouring with soap and water, as a preparation for its introduction. It is then placed in an antiseptic solution and immediately preceding its introduction is well covered with a suitable lubricant.

In introducing the usual form of the modified ring pessary, that is those with a diameter longer antero-posteriorly than transversely, hold the anterior bar of the pessary with the thumb and index finger of the right hand and visualize its position and action when it is properly adjusted. Depress the perineum with the index finger of the left hand and introduce the posterior end of the pessary with its transverse diameter approximately in the direction of the vulval cleft, the bar of the pessary which is uppermost being kept to one side of the urethra to avoid painful pressure. After being introduced about half way the pessary is turned so that its transverse diameter lies horizontally with its posterior end di-

rected upward. It is now gently pushed backward until the posterior bar meets the resistance of the anterior surface of the cervix. The index finger of the right hand is now passed into the vagina beneath the pessary, the posterior bar is reached and disengaged from the front of the cervix and pushed behind it. The pessary is now in place and should be settled there by passing the index finger around it and gently lifting it upward and backward a few times. It should give neither pain nor discomfort when the patient gets upon her feet and walks about. In fact, if there is a consciousness of the presence of the pessary, it does not fit properly and it should be removed and either a smaller one, or one of another form, fitted.

A Hodge, a Thomas or a Smith pessary is most frequently used for retrodisplacements. While these appear very similar they each present some peculiarities that adapt them to different cases. Of these the Thomas pessary is most generally useful. Its broad posterior bar affords a larger surface for pressure and lessens the liability to erosion or ulceration. Its small anterior end fits well up under the symphysis and offers no interference with douching or copulation. Its decided curves from before backward offer good points of support by the tissues of the vaginal walls.

The Hodge pessary with its wider anterior bar will sometimes give better support if the floor of the

pelvis is badly damaged. The broad posterior end of the Thomas pessary is sometimes too large to fit into the posterior fornix of the vagina, especially when the latter is small or shallow. The Smith pessary may be better adapted to this condition.

For prolapsus some form of the ring pessary is usually used. This pessary is primarily for support and has none of the lever action which is so essential in maintaining the uterus in its normal anteverted position. It merely raises and supports the uterus and the attached tissues. It is one form of pessary that may be used, and which may give a great deal of comfort, without the correction of the displacement. It secures its support by pressure against the vaginal walls and whatever muscles and fascia there may be remaining in the pelvic floor and about the vaginal outlet.

The simple ring pessaries are the flexible ring (made of coiled wire covered with rubber), the copper wire covered with rubber, the hard rubber ring and the soft rubber inflated ring. The latter is perhaps the most useful of these, but because of its broad surface, especial care is necessary to keep it clean and free of incrustations. It should be removed and thoroughly cleansed at least every week or ten days. Besides this a daily douche is necessary. After being worn for some time they may become deflated. They may be reinflated by means of a hypodermic

syringe, the needle being inserted through a thickened spot that is easily found.

Both the elastic ring and the inflated ring pessaries have the advantage that they can be introduced in a partially compressed state. They then expand within the vagina.

All of the ring pessaries have a tendency, after being worn for a short while, to shift their positions and turn edgewise to the vaginal entrance and to slip out. To prevent this a ring with a bar running crosswise its center from which a stem projects into the vagina, has been devised. This is called the Minge or Vienna pessary (Fig. 56.) The ring may be of hard rubber and the stem detachable, or the entire pessary may be made of soft rubber. The hard rubber ring is introduced as usual and the stem then secured in the opening provided for it.

The Hewitt pessary, is a tier of inflated soft rubber rings, the smallest at the upper end. It is large, heavy and fills the vagina completely. Its supporting surfaces are extensive and it has corresponding liability to irritate the vaginal walls and to collect and retain the secretions. It requires great care, frequent cleansing and prevents satisfactory douching.

The Gehrung pessary, a ring first flattened and the ends of the oval then bent toward each other, is



Fig. 69.

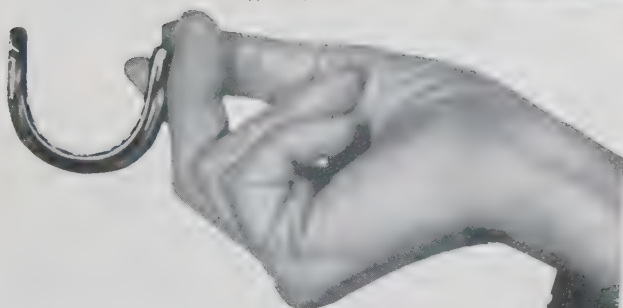


Fig. 70.



Fig. 71.

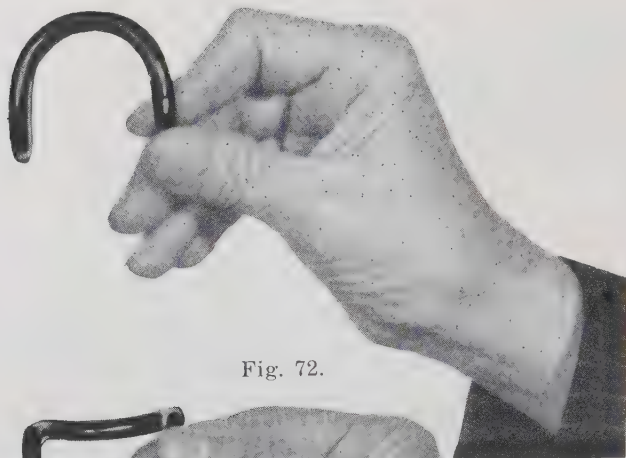


Fig. 72.

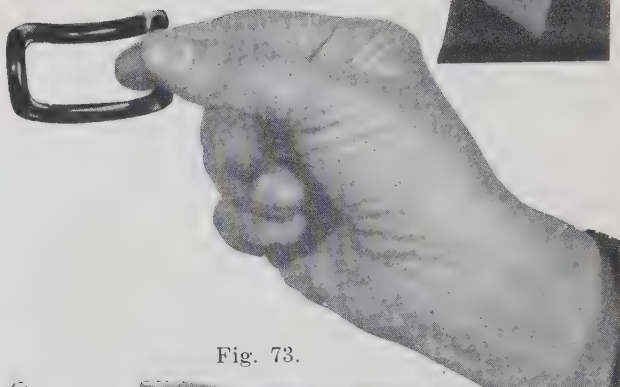


Fig. 73.

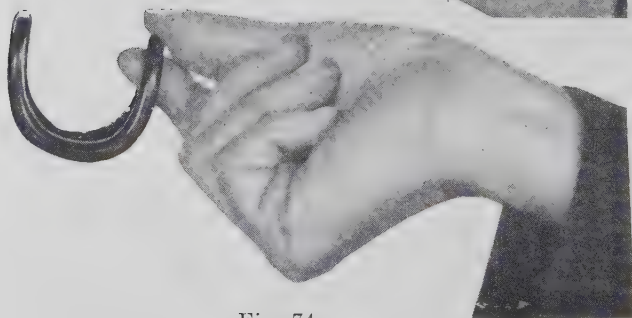


Fig. 74.

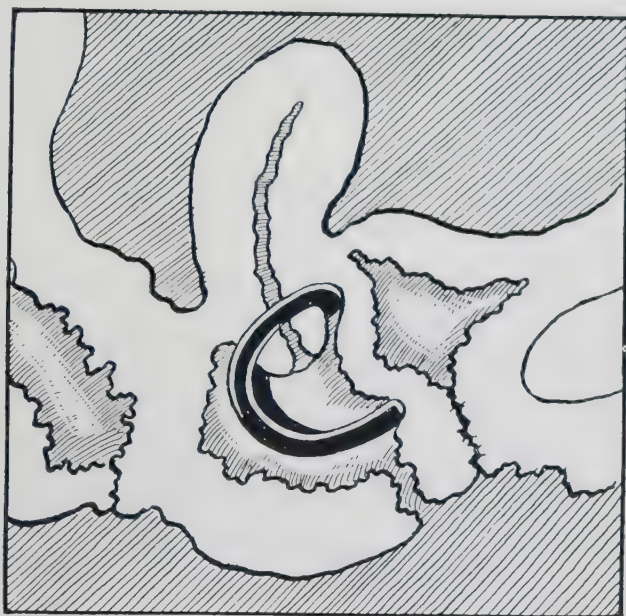


Fig. 75. Gehrung Pessary in Position.

valuable in the treatment of prolapse of the uterus or of the anterior vaginal wall, cystocele. Notwithstanding its value the introduction of this pessary is somewhat difficult and complicated. First straddle the pessary over the index finger of the right hand, (Fig. 69), and then gently grasp the loop nearest you with the thumb and index finger, the palmar surface of the hand looking upward. (Fig. 70.) The hand with the pessary is turned toward the left until its dorsal surface looks upward and to your left. (Fig. 71.) The point of the loop opposite the one that is grasped (the free loop) is hooked into the vagina, the point of both loops being directed toward the patient's left, or your right. The loop held in the right hand, with a sort of screwing motion, gently pressing inward all the time, is brought downward to (Fig. 72), and then past the posterior median line and on upward toward the patient's right. (Fig. 73). As the point midway between the anterior and posterior median lines is passed, and the loop is pointing somewhat upward, it is slipped within the vagina and carried to the anterior median line. (Fig. 74.) This loop (and the pessary as a whole for that matter) has now described nearly three fourths of a circle and lies just within the vagina. It is now pushed backward until it passes the urethral opening, the opposite loop lying just anterior to the cervix, supporting the base of the bladder and perhaps the uterus also. (Fig. 75.) The pessary is supported by the natural narrowing of the vaginal outlet. I have sometimes

found it necessary to spread the limbs of the anterior loop of this pessary so that it is made wider. This gives it a more secure support within the vaginal entrance.

The belt pessary is only resorted to when all others fail. It is used, and sometimes affords great relief, when the pelvic floor is destroyed and there is no possible support for any other form of pessary.

Stem pessaries are sometimes successfully used in anteflexion for the relief of dysmenorrhoea and sterility. They may occasionally cause inflammation of the tubes, and are necessarily foreign bodies in the uterus, but notwithstanding these objections their use is justified in selected cases.

Certain forms of stem pessaries are self retaining and these are preferable to those that have to be retained by a vaginal pessary or by tampons. In using the self-retaining pessary it is sometimes necessary to maintain the uterus in place with a vaginal pessary.

The intra-uterine stem is usually either grooved, or it is hollow, to allow the passage of the menstrual flow and the entrance of the spermatozoa in cases of sterility. To introduce a stem pessary it is sometimes necessary to dilate the cervix under anesthesia, though most of them are easily introduced if they

are previously curved to conform to the angulation of the cervix and body of the uterus.

A stem pessary may be left in place from six weeks to two or three months if no untoward symptoms manifest themselves. The patient must be under observation during this time and if pain or marked leucorrhoea occur the pessary must be removed at once.

Pessaries require constant observation and attention.

After a pessary is fitted the patient should be required to return in two or three days to see that the uterus is retained in position and that the pessary is also in place and has not caused any degree of irritation. Of course the patient is advised to return at once should there be any inconvenience, or discomfort, or any indication that the pessary had slipped out of position.

If, after the first visit, all is well, the patient is expected to call again within a week or ten days when she is again examined. At each of these visits the pessary is removed, cleansed and replaced. Although the uterus is properly supported, the old adhesions are again stretched bimanually and the uterus is freely moved in all directions. This is repeated every two weeks until two or three months have passed when the pessary is removed.

After the removal of the pessary the patient is requested to return after two or three days, and if on examination the proper uterine position is retained, she is told to return again in ten days or two weeks. If, on examination at this time, the normal position is still maintained, the patient is asked to call again in six or eight weeks for a final examination. If all is now well, she is discharged with instructions to report again should there be any indications that the displacement has returned.

If, however, after the first visit the uterus has not maintained its position, or the pessary has slipped or has shown evidence of irritating the vaginal walls, it must be removed, reshaped and refitted or another one better adapted to the particular case, introduced. The patient must return again in three or four days to determine if this newly fitted instrument meets all indications. If it does the visits are made at longer intervals, as before indicated.

If after the pessary has been worn for two or three months and is finally removed, should there be a return of the displacement, a careful search for the cause of this should be made. There may be some remaining adhesions not sufficiently relaxed: a failure of some of the factors necessary to retain the uterus in place or an improperly fitted pessary. The cause of the failure of the uterus to remain in place having been determined and remedied, if pos-

sible, the patient is kept under observation, as before, and the pessary again removed in two or three months. Should the displacement again recur the pessary may have to be worn indefinitely or an operation considered if the symptoms are sufficiently troublesome.

A patient when wearing a pessary, especially after it is first introduced, should take a copious douche of warm water daily. Boric acid or some other mild antiseptic may be added, if desired.

Women may wear pessaries almost indefinitely without irritation though if they are not properly fitted and cared for the irritation and inflammation caused by them may more than offset the good they may do. The toleration of the vaginal walls is almost incredible in some instances. I once removed a hard rubber ring pessary that had been in place without removal for at least thirty years. A patient of nearly seventy complained of a leucorrhoea and upon examination the pessary was found. It was considerably eroded where it fitted in the posterior vaginal fornix and at which point it was almost embedded in the tissues. It was removed without difficulty and with the use of mild antiseptic and cleansing douches the leucorrhoea ceased in a few days.

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